

DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/ TRV210E/TRV310/TRV310E/TRV310P/TRV315 DCR-TR7000/TR7000E/TR7100E RMT-814

SERVICE MANUAL

Ver 1.3 2001. 01

Self Diagnosis
Supported model

Digital Handycam

Digital 8

 InfoLITHIUM



B800 MECHANISM



Photo: DCR-TRV310E

US Model
DCR-TRV103/TRV110/TRV210/TRV310/TRV315/TR7000
Canadian Model
DCR-TRV103/TRV110/TRV203/TRV210/TRV315/TR7000
E Model
DCR-TRV110/TRV110E/TRV110P/
TRV310/TRV310E/TRV310P
Hong Kong Model
DCR-TRV110/TRV110E/TRV310/TRV310E
AEP Model
DCR-TRV110E/TRV210E/TRV310E/
TR7000E/TR7100E
UK Model
DCR-TRV110E/TRV210E/TRV310E/TR7000E
Tourist Model
DCR-TRV110E/TRV310E
Australian Model
DCR-TRV110E/TRV310E
Brazilian Model
DCR-TRV110
Chinese Model
DCR-TRV110E/TRV210E/TRV310E
East European Model
North European Model
Russian Model
DCR-TRV110E
Taiwan Model
DCR-TRV310

NTSC MODEL : DCR-TRV103/TRV110/TRV110P/TRV203/TRV210/
TRV310/TRV310P/TRV315/TR7000

PAL MODEL : DCR-TRV110E/TRV210E/TRV310E/TR7000E/TR7100E

For MECHANISM ADJUSTMENT, refer to
the "8mm Video MECHANICAL
ADJUSTMENT MANUAL VII" (9-973-801-11).

SPECIFICATIONS

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning system
Audio recording system
Rotary heads, PCM system
Quantization: 12 bits (Fs 32 kHz,
stereo 1, stereo 2), 16 bits
(Fs 48 kHz, stereo)
Video signal
DCR-TRV103/TRV110/TRV110P/
TRV203/TRV210/TRV310/
TRV310P/TRV315/TR7000:
NTSC color, EIA standards
TRV110E/TRV210E/TRV310E/
TR7000E/TR7100E:
PAL color, CCIR standards
Recommended cassette
Hi8 video cassette
Recording/playback time
DCR-TRV103/TRV110/TRV110P/
TRV203/TRV210/TRV310/TRV310P/
TRV315/TR7000: (using 120 min.
cassette)
1 hours
DCR-TRV110E/TRV210E/TRV310E/
TR7000E/TR7100E: (using 90 min.
cassette)
1 hours
Fastforward/rewind time DCR-
TRV103/TRV110/TRV110P/TRV203/
TRV210/TRV310/TRV310P/TRV315/
TR7000: (using 120 min. cassette)
DCR-TRV110E/TRV210E/TRV310E/
TR7000E/TR7100E: (using 90 min.
cassette)
Approx. 8 min.

Image device
1/4 inch CCD (Charge Coupled
Device)
DCR-TRV103/TRV110/TRV110P/
TRV203/TRV210/TRV310/
TRV310P/TRV315/TR7000:
Approx. 460,000 pixels
(Effective: Approx. 290,000 pixels)
DCR-TRV110E/TRV210E/
TRV310E/TR7000E/TR7100E:
Approx. 800,000 pixels
(Effective: Approx. 400,000 pixels)
Viewfinder
Electronic viewfinder
DCR-TRV315/TR7000/TR7000E/
TR7100E:
Monochrome
DCR-TRV103/TRV110/TRV110E/
TRV110P/TRV203/TRV210/
TRV210E/TRV310/TRV310E/
TRV310P:
Color
Lens
Combined power zoom lens
Filter diameter 1 7/16 in. (37 mm)
20× (Optical),
DCR-TRV103/TRV110/TRV110E:
EE, NE, RU/TRV110P/TRV203/
TRV210/TRV210E: CN/TRV310/
TRV310E/TRV310P: E, HK,
AUS, CN, JE/TRV315/TR7000:
360× (Digital)
DCR-TRV110E: AEP, UK/TRV210E:
AEP, UK/TRV310E: AEP, UK/
TR7000E/TR7100E:
80× (Digital)

Focal length
5/32 - 2 7/8 in. (3.6 - 72 mm)
When converted to a 35 mm still
camera
1 5/8 - 32 3/8 in. (41 - 820 mm)
Color temperature
Auto
Minimum illumination
DCR-TRV103/TRV110/TRV110P/
TRV203/TRV210/TRV310/
TRV310P/TRV315/TR7000:
1.0 lux (F 1.4)
DCR-TRV110E/TRV210E/
TRV310E/TR7000E/TR7100E:
3 lux (F 1.4)
0 lux (in the NightShot mode)*
* Objects unable to be seen due to
the dark can be shot with
infrared lighting

Input and output connectors

DCR-TRV103/TRV110/TRV110E: E,
HK, AUS, CN, JE/TRV110P/TRV203/
TRV210/TRV210E: CN/TRV310/
TRV310E: E, HK, AUS, CN, JE/
TRV310P/TRV315/TR7000:
S video input/output
DCR-TRV110E: AEP, UK, EE, NE,
RU/TRV210E: AEP, UK/TRV310E:
AEP, UK/TR7000E/TR7100E:
S video output
4-pin mini DIN
Luminance signal: 1 Vp-p,
75 ohms, unbalanced

DCR-TRV103/TRV110/TRV110P/
TRV203/TRV210/TRV310/
TRV310P/TRV315/TR7000:
Chrominance signal: 0.286 Vp-p,
DCR-TRV110E/TRV210E/
TRV310E/TR7000E/TR7100E:
Chrominance signal: 0.3 Vp-p
75 ohms, unbalanced
DCR-TRV103/TRV110/TRV110E: E,
HK, AUS, CN, JE/TRV110P/TRV203/
TRV210/TRV210E: CN/TRV310/
TRV310E: E, HK, AUS, CN, JE/
TRV310P/TRV315/TR7000:
Video input/output
DCR-TRV110E: AEP, UK, EE, NE,
RU/TRV210E: AEP, UK/TRV310E:
AEP, UK/TR7000E/TR7100E:
Video output
Phono jack, 1 Vp-p, 75 ohms,
unbalanced
DCR-TRV103/TRV110/TRV110E: E,
HK, AUS, CN, JE/TRV110P/TRV203/
TRV210/TRV210E: CN/TRV310/
TRV310E: E, HK, AUS, CN, JE/
TRV310P/TRV315/TR7000:
Audio input/output
DCR-TRV110E: AEP, UK, EE, NE,
RU/TRV210E: AEP, UK/TRV310E:
AEP, UK/TR7000E/TR7100E:
Audio output
Phono jacks (2: stereo L and R)
327 mV, (at output impedance
47 kilohms) impedance less than
2.2 kilohms
RFU DC OUT
Special minijack, DC 5V

Digital 8 DIGITAL VIDEO CAMERA RECORDER



SONY®

DCR-TRV103/TRV110/TRV110E: E, HK, AUS, CN, JE/TRV110P/TRV203/TRV210/TRV210E: CN/TRV310/TRV310E: E, HK, AUS, CN, JE/TRV310P/TRV315/TR7000:

DV input/output

DCR-TRV110E: AEP, UK, EE, NE, RU/TRV210E: AEP, UK/TRV310E: AEP, UK/TR7000E/TR7100E:

DV output

4-pin connector

Headphone jack

Stereo minijack (ø 3.5 mm)

LANC control jack

Stereo mini-minijack (ø 2.5 mm)

MIC jack

Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kilohms (ø 3.5 mm)
Stereo type

LCD screen

Picture

DCR-TRV103/TRV110/TRV110E/TRV110P:

2.5 inches measured diagonally

2 × 1 1/2 in. (50.3 × 37.4 mm)

DCR-TRV203/TRV210/TRV210E/TRV315:

3 inches measured diagonally

2 3/8 × 1 3/4 in. (59.5 × 43.2 mm)

DCR-TRV310/TRV310E/TRV310P:

3.5 inches measured diagonally

2 7/8 × 2 in. (72.4 × 50.4 mm)

Total dot number

DCR-TRV103/TRV110/TRV110E/TRV110P:

61,380 (279 × 220)

DCR-TRV203/TRV210/TRV210E/TRV315:

89,622 (383 × 234)

DCR-TRV310/TRV310E/TRV310P:

105,380 (479 × 220)

General

Power requirements

7.2 V (battery pack)

8.4 V (AC power adaptor)

Average power consumption
(when using the battery pack)

During camera recording using LCD

DCR-TRV103/TRV110/TRV110P:

3.5 W

DCR-TRV110E: 3.6 W

DCR-TRV203/TRV210/TRV210E/TRV315: 3.9 W

DCR-TRV310/TRV310E/TRV310P:

4.2 W

Viewfinder

DCR-TRV110E/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P: 3.2 W

DCR-TRV103/TRV110/TRV110P/TRV315: 3.1 W

During camera recording

DCR-TR7000/TR7000E/TR7100E:

3.1 W

Operating temperature

32 °F to 104 °F (0 °C to 40 °C)

Storage temperature

−4 °F to +140 °F (−20 °C to +60 °C)

Dimensions (Approx.)

DCR-TRV103/TRV110/TRV110E/TRV110P:

4 × 4 1/4 × 8 5/8 in.

(101 × 107 × 217 mm) (w/h/d)

DCR-TRV203/TRV210/TRV210E/TRV310/TRV310E:

4 3/8 × 4 1/4 × 8 5/8 in.

(108 × 107 × 217 mm) (w/h/d)

DCR-TRV315:

4 3/8 × 4 1/4 × 7 3/4 in.

(108 × 106 × 195 mm) (w/h/d)

DCR-TR7000/TR7000E/TR7100E:

4 × 4 1/4 × 7 3/4 in.

(101 × 106 × 195 mm) (w/h/d)

Mass (approx.)

DCR-TRV103/TRV110/TRV110E/TRV110P:

1 lb 15 oz (890 g)

DCR-TRV203/TRV210/TRV210E/TRV315:

2 lb (930 g)

DCR-TRV310/TRV310E:

2 lb 1 oz (960 g)

DCR-TR7000/TR7000E/TR7100E:

1 lb 11 oz (790 g)

excluding the battery pack, lithium battery, cassette and shoulder strap

DCR-TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/

TRV315:

2 lb 6 oz (1.1 kg)

DCR-TRV103/TRV110/TRV110E/TRV110P:

2 lb 3 oz (1 kg)

DCR-TR7000/TR7000E/TR7100E:

1 lb 11 oz (790 g)

including the battery pack

NP-F330, lithium battery CR2025, 120 min. cassette

(DCR-TRV103/TRV110/TRV110P/TRV203/TRV210/TRV310/

TRV310P/TRV315/TR7000), 90 min. cassette (DCR-TRV110E/TRV210E/

TRV310E/TR7000E/TR7100E)

and shoulder strap

Supplied accessories

See page 3.

AC power adaptor

Power requirements

100 - 240 V AC, 50/60 Hz

Power consumption

23 W

Output voltage

DC OUT: 8.4 V, 1.5 A in operating mode

Operating temperature

32 °F to 104 °F (0 °C to 40 °C)

Storage temperature

−4 °F to +140 °F (−20 °C to +60 °C)

Dimensions (approx.)

5 × 1 9/16 × 2 1/2 in.

(125 × 39 × 62 mm) (w/h/d)

excluding projecting parts

Mass (approx.)

9.8 oz (280 g)

excluding power cord

Cord length (approx.)

AC power cord: 6.6 feet (2 m)

Connecting cord: 5.2 feet (1.6 m)

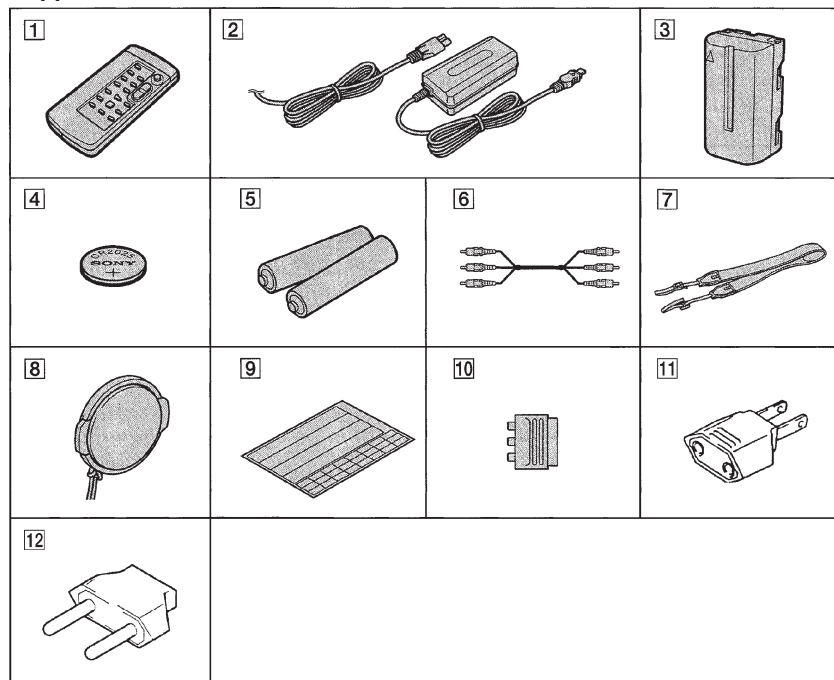
Design and specifications are

subject to change without notice.

• Abbreviation

EE : East European model
NE : North European model
RU : Russian model
HK : Hong Kong model
AUS : Australian model
CN : Chinese model
JE : Tourist model

Supplied accessories



1 Wireless Remote Commander (1)

2 AC-L10A/L10B/L10C AC power adaptor (1), Power cord (1)

3 NP-F330 Battery pack (1)

4 CR2025 Lithium Battery (1)
The lithium battery is already installed in your camcorder.

5 Size AA (R6) battery for Remote Commander (2)

6 A/V connecting cable (1)

7 Shoulder strap (1)

8 Lens cap (1)

9 Label sheet for cassette (1)
Stick this label on the recorded cassette.

10 21-pin adaptor (1)
DCR-TR7000E/TR7100E/TRV210E: AEP, UK/
TRV310E: AEP, UK/TRV110E: AEP, UK,
EE, NE, RU only

11 2-pin conversion adaptor (1)
DCR-TRV110E: E, HK/TRV110: E, HK, BR/
TRV110P/TRV310E: E, HK/TRV310: E, HK/
TRV310P only

12 2-pin conversion adaptor (1)
DCR-TRV110E: JE/TRV310E: JE/
TRV310: JE only

- Abbreviation
- EE : East European model
- NE : North European model
- RU : Russian model
- HK : Hong Kong model
- BR : Brazilian model
- JE : Tourist model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

- Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
- Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
- Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
- Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
- Check the B+ voltage to see it is at the values specified.
- Flexible Circuit Board Repairing
 - Keep the temperature of the soldering iron around 270°C during repairing.
 - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
 - Be careful not to apply force on the conductor when soldering or unsoldering.

Table for difference of function

Model	DCR- TRV110/ TRV110P/ TRV103	DCR- TRV110E	DCR- TRV203	DCR- TRV210	DCR- TRV210E	DCR- TRV310/ TRV310P	DCR- TRV310E	DCR- TRV315	DCR- TR7000	DCR- TR7000E/ TR7100E	Remark
Destination	US, CND, E, HK, BR	AEP, UK, EE, NE, RU	CND	US, CND	AEP, UK	CN	US, E, HK, JE, TW	US, CND	US, CND	AEP, UK	
Color system	NTSC	PAL	NTSC	NTSC	PAL	PAL	E, HK, AUS, CN, JE	NTSC	NTSC	PAL	NTSC : X251 is 28.636MHz PAL : X251 is 28.375MHz
Remote Commander	RMT-814	RMT-814	RMT-814	RMT-814	RMT-814	RMT-814	RMT-814	RMT-814	RMT-814	RMT-814	
Lens	20×	20×	20×	20×	20×	20×	20×	20×	20×	20×	
Digital zoom	360×	80× (Note)	360×	360×	80×	360×	360×	360×	360×	80×	
CCD imager	720H	960H	720H	720H	960H	960H	960H	720H	720H	960H	960H:with IC503 of VC-213 board
MONITOR IN	○	○	○	○	○	○	○	○	×	×	○:with Q641-644 of VC-213 board
VTR REC	○	×	○	○	×	○	○	○	○	×	○:with REC button and Q641- 644 of VC-213 board
LCD (size)	2.5	2.5	3.0	3.0	3.0	3.0	3.5	3.0	×	×	2.5 inch : with PD-105 board 3/3.5 inch : with PD-106 board
LCD (pixel)	61k	84k	89k	89k	89k	89k	105k	89k	×	×	
LCD type	TYPE S	TYPE S	TYPE S	TYPE S	TYPE S	TYPE S	TYPE C	TYPE S	×	×	
View finder	B/W	B/W	B/W	B/W	B/W	B/W	B/W	Color	Color	Color	Color : with VF-126 board B/W : with VF-129 board
CD board	CD-212	CD-213	CD-212	CD-212	CD-213	CD-213	CD-212	CD-212	CD-212	CD-213	
CF board	CF-62	CF-62	CF-63	CF-63	CF-63	CF-63	CF-63	CF-63	CF-65	CF-65	
MA board	MA-354	MA-354	MA-355	MA-355	MA-355	MA-355	MA-355	MA-355	MA-357	MA-357	
PD board	PD-105	PD-105	PD-106	PD-106	PD-106	PD-106	PD-106	PD-106	×	×	
VF board	VF-129	VF-129	VF-129	VF-129	VF-129	VF-129	VF-129	VF-126	VF-126	VF-126	
SE board	SE-86	SE-86	SE-87	SE-87	SE-87	SE-87	SE-87	SE-87	SE-89	SE-89	
PJ board	PJ-95	PJ-95	PJ-96	PJ-96	PJ-96	PJ-96	PJ-96	PJ-96	PJ-98	PJ-98	

Note : EE, NE, RU model is 360×.

• Abbreviation

- CND : Canadian model
- EE : East European model
- NE : North European model
- RU : Russian model
- HK : Hong Kong model
- AUS : Australian model
- CN : Chinese model
- BR : Brazilian model
- JE : Tourist model
- TW : Taiwan model

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* The color reproduction frame is shown on page 323.

SERVICE NOTE

1. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied (8.4V) to the battery terminal using the service power cord (J-6082-223-A), the power is shut off so that the unit cannot operate.

The following two methods are available to prevent this. Take note of which to use during repairs.

Method 1.

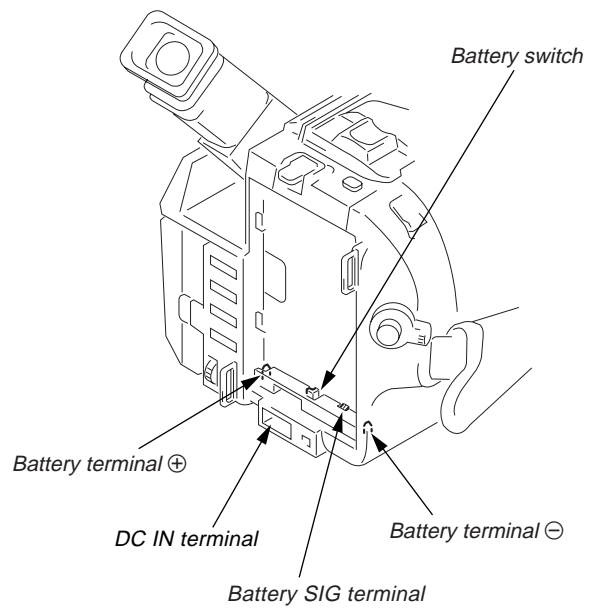
Connect the servicing remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the remote commander switch to the "ADJ" side.

Method 2.

Press the battery switch of the battery terminal using adhesive tape, etc.

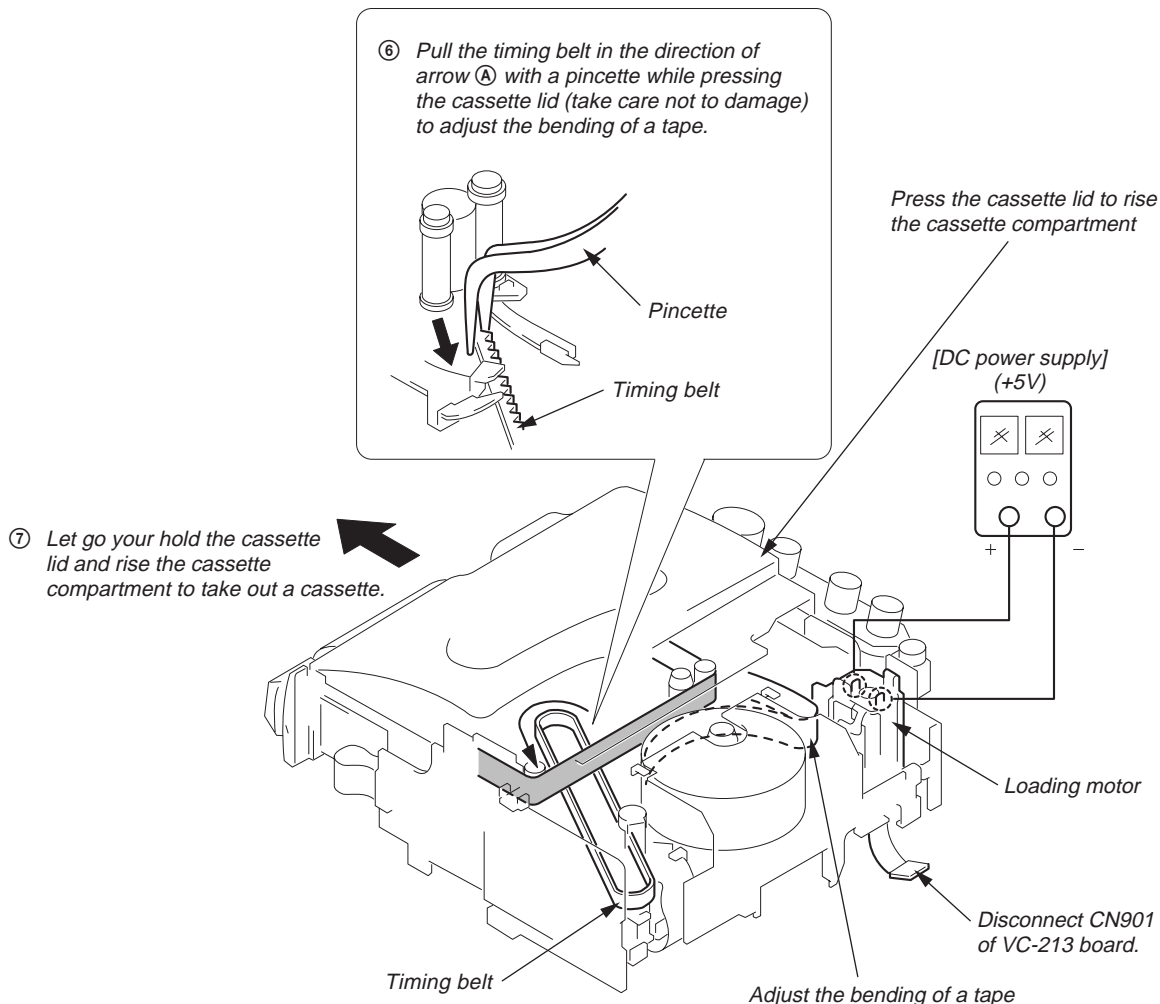
Method 3.

Use the DC IN terminal. (Use the AC power adaptor.)



2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

- ① Refer to 2-1. to remove the front panel assembly.
- ② Refer to 2-1. to remove the cabinet (R) assembly.
- ③ Refer to 2-1. to remove the battery panel assembly.
- ④ Refer to 2-1. to remove the cabinet (L) assembly.
- ⑤ Disconnect CN901 of VC-213 board.
- ⑥ Add +5V from the DC POWER SUPPLY and unload with a pressing the cassette lid.



SELF-DIAGNOSIS FUNCTION

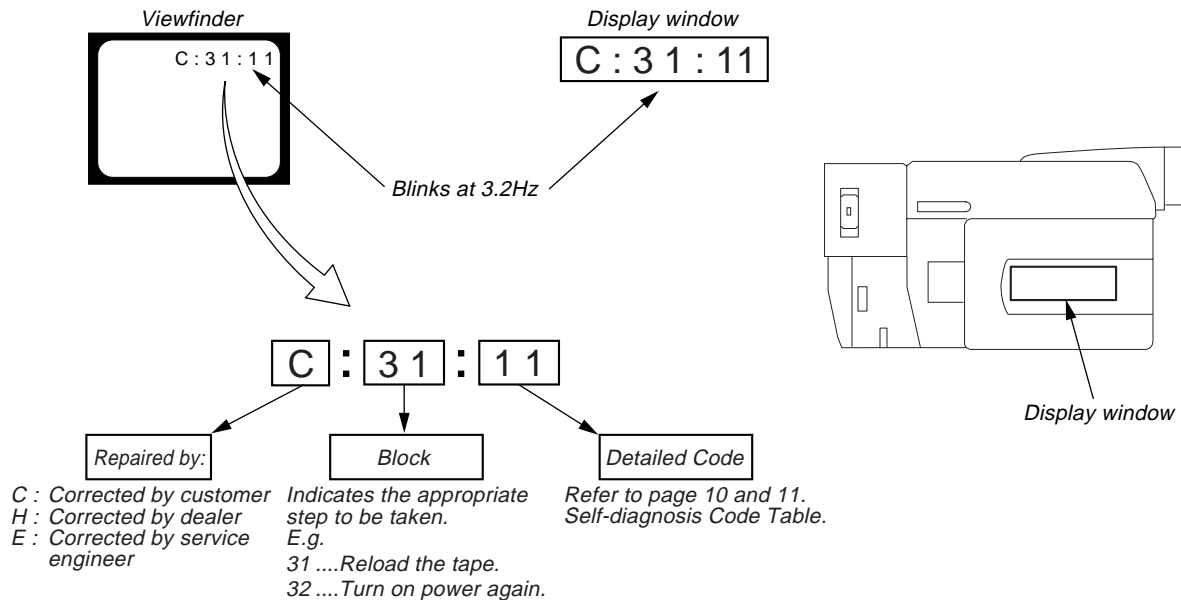
1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or Display window what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction manual.

2. Self-diagnosis Display

When problems occur while the unit is operating, the counter of the viewfinder or Display window shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the “repaired by:”, “block” in which the problem occurred, and “detailed code” of the problem.

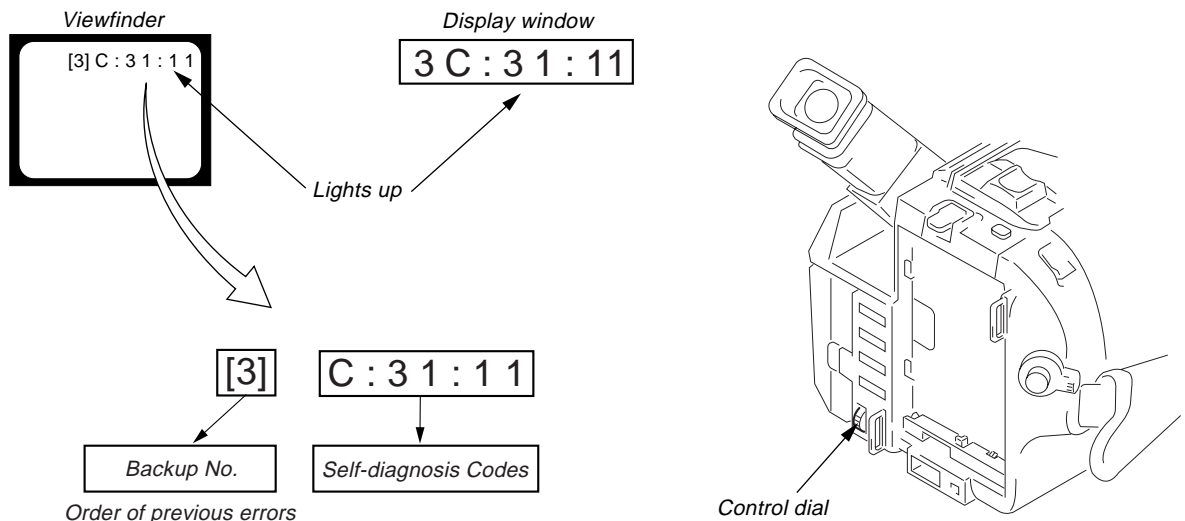


3. Service Mode Display

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

While pressing the “STOP” key, set the switch from OFF to “VTR or PLAYER”, and continue pressing the “STOP” key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.



3-2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

- | | |
|----------------------------|------------------------------|
| [1] : Occurred first time | [4] : Occurred fourth time |
| [2] : Occurred second time | [5] : Occurred fifth time |
| [3] : Occurred third time | [6] : Occurred the last time |

3-3. End of Display

Turning OFF the power supply will end the service mode display.

Note: The “self-diagnosis display” data will be backed up by the coin-type lithium battery (CF-62/63/65 board BH001). When this coin-type lithium battery is disconnected, the “self-diagnosis display” data will be lost by initialization.

4. Self-diagnosis Code Table

Self-diagnosis Code				Symptom/State	Correction
Repaired by:	Block Function	Detailed Code			
C	2 1	0 0		Condensation.	Remove the cassette, and insert it again after one hour.
C	2 2	0 0		Video head is dirty.	Clean with the optional cleaning cassette.
C	2 3	0 0		Non-standard battery is used.	Use the InfoLITHIUM battery.
C	3 1	1 0		LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	1 1		UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	2 0		T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 1		S reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 2		T reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	2 3		S reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	3 0		FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3 1	3 1		FG fault during normal capstan operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 0		FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 1		PG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 2		FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 3		PG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 4		Phase fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 2	1 0		LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	1 1		UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 0		T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 1		S reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 2		T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 3		S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 0		FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 1		FG fault during normal capstan operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 0		FG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 1		PG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 2		FG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 3		PG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 4		Phase fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
E	6 1	0 0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Pin ⑫ of CN551 of VC-213 board) when focusing is performed when the control dial is rotated in the focus manual mode and the focus motor drive circuit (IC551 of VC-213 board) when the focusing is not performed. Note: Use the remote commander RM-95 only for the model without the focus dial.
E	6 1	1 0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ⑭ of CN551 of VC-213 board) when zooming is performed when the zoom lens is operated and the zoom motor drive circuit (IC551 of VC-213 board) when zooming is not performed.
E	6 2	0 0	Handshake correction function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE651 of SE-86/87/89 board) peripheral circuits.
E	6 2	0 1	Handshake correction function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE652 of SE-86/87/89 board) peripheral circuits.

SECTION 1 GENERAL

This section is extracted from instruction manual. (3-865-973-11)

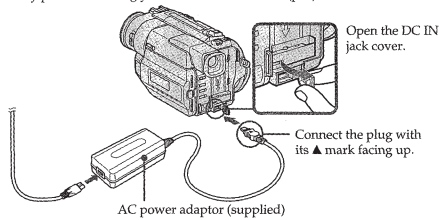
Quick Start Guide



This chapter introduces you to the basic features of your camcorder. See the page in parentheses "()" for more information.

1 Connecting the power cord (p. 12)

Use the battery pack when using your camcorder outdoors (p. 8).



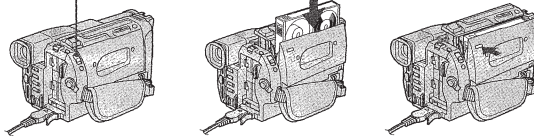
2 Inserting a cassette (p. 13)

1 Slide EJECT in the direction of the arrow while pressing the small blue button.



2 Insert a cassette into the cassette compartment with its window facing out.

3 Close the cassette compartment by pressing the "PUSH" mark on the cassette compartment. The cassette compartment automatically goes down.



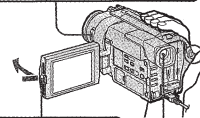
3 Recording a picture (p. 14)

1 Remove the lens cap.

2 Set the POWER switch to CAMERA while pressing the small green button.



3 Open the LCD panel while pressing OPEN.



Viewfinder
When the LCD panel is closed, use the viewfinder placing your eye against its eyecup.

4 Turn STANDBY to STANDBY. The picture appears on the LCD screen.



5 Press the red button. Your camcorder starts recording. To stop recording, press the red button again.



4 Monitoring the playback picture on the LCD screen (p. 22)

1 Set the POWER switch to VTR while pressing the small green button.



2 Press ◀◀ to rewind the tape.



3 Press ▶▶ to start playback.



NOTE
Do not pick up your camcorder by holding the viewfinder or by holding the LCD panel.



— Getting started — Using this manual

The instructions in this manual are for the four models listed in the table below. Before you start reading this manual and operating your camcorder, check the model number by looking at the bottom of your camcorder. The DCR-TRV315 is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "DCR-TRV315 only."

As you read through this manual, buttons and settings on your camcorder are shown in capital letters.

e.g. Set the POWER switch to CAMERA.

When you carry out an operation, you can hear a beep sound to indicate that the operation is being carried out.

Types of differences

DCR-	TRV203/TRV210/TRV310	TRV315
Viewfinder	B/W	color

Before using your camcorder

With your digital camcorder, you can use Hi8 video cassettes **Hi8**. Your camcorder records and plays back pictures in the Digital8 **i** system. Also, your camcorder plays back tapes recorded in the Hi8 **Hi8**/standard 8 **8** (analog) system. You, however, cannot use the functions in "Advanced Playback Operations" on page 42 to 48 for playback in the Hi8 **Hi8**/standard 8 **8** system. To enable smooth transition, we recommend that you do not mix pictures recorded in the Hi8 **Hi8**/standard 8 **8** with the Digital8 **i** system on a tape.

Note on TV color systems

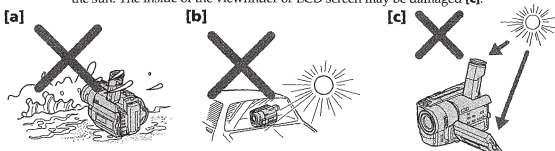
TV color systems differ from country to country. To view your recordings on a TV, you need an NTSC system-based TV.

Copyright precautions

Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

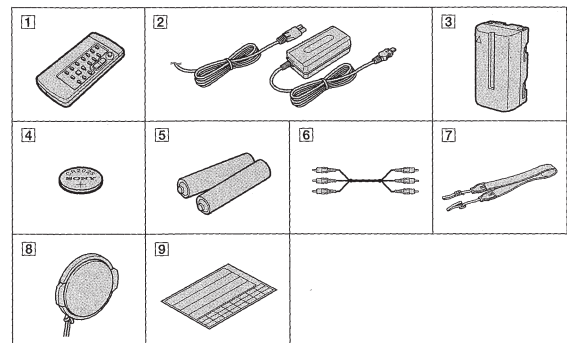
Precautions on camcorder care

- The LCD screen and/or the color viewfinder are manufactured using high-precision technology. However, there may be some tiny black spots and/or bright spots (red, blue or green in color) that constantly appear on the LCD screen and/or in the viewfinder. These spots occur normally in the manufacturing process and do not affect the recorded picture in any way. Effective number of pixels is 99.99% or more.
- Do not let your camcorder get wet. Keep your camcorder away from rain and sea water. Letting your camcorder get wet may cause your camcorder to malfunction. Sometimes this malfunction cannot be repaired [a].
- Never leave your camcorder exposed to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight [b].
- Do not place your camcorder so as to point the viewfinder or the LCD screen toward the sun. The inside of the viewfinder or LCD screen may be damaged [c].



Checking supplied accessories

Make sure that the following accessories are supplied with your camcorder.



- Wireless Remote Commander (1) (p. 81)
- AC-L10A/L10B/L10C AC power adaptor (1), Power cord (1) (p. 9)
- NP-F330 battery pack (1) (p. 8, 9)
- CR2025 lithium battery (1) (p. 62)
The lithium battery is already installed in your camcorder.
- Size AA (R6) battery for Remote Commander (2) (p. 81)
- A/V connecting cable (1) (p. 25)
- Shoulder strap (1) (p. 78)
- Lens cap (1) (p. 14)
- Label sheet for cassette (1)
Stick this label on the recorded cassette.

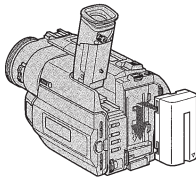
Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

Step 1 Preparing the power supply

Installing the battery pack

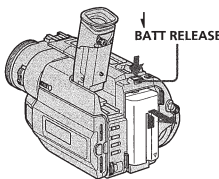
Install the battery pack to use your camcorder outdoors.

Slide the battery pack down.



To remove the battery pack

Slide the battery pack out in the direction of the arrow while pressing ↓ BATT RELEASE down.



After installing the battery pack

Do not carry your camcorder by holding the battery pack. If you do so, the battery pack may slide off your camcorder unintentionally, damaging your camcorder.

8

Step 1 Preparing the power supply


Charging the battery pack

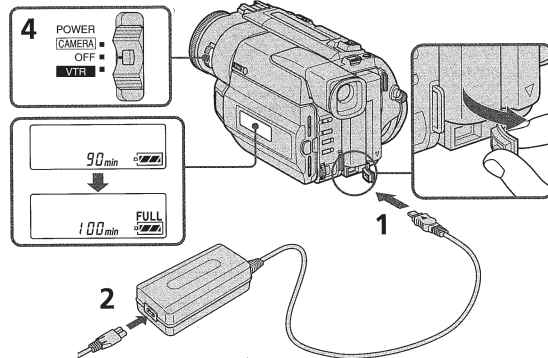
Use the battery pack after charging it for your camcorder.

Your camcorder operates only with the "InfoLITHIUM" battery pack (L series).

"InfoLITHIUM" is a trademark of Sony Corporation.

- (1) Open the DC IN jack cover and connect the AC power adaptor supplied with your camcorder to the DC IN jack with the plug's ▲ mark facing up.
- (2) Connect the power cord to the AC power adaptor.
- (3) Connect the power cord to a wall outlet.
- (4) Set the POWER switch to OFF. Charging begins. The remaining battery time is indicated in minutes on the display window.

When the remaining battery indicator changes to , **normal charge** is completed. To fully charge the battery (**full charge**), leave the battery pack attached for about 1 hour after normal charge is completed until **FULL** appears in the display window. Fully charging the battery allows you to use the battery longer than usual.



Note

Prevent metallic objects from coming into contact with the metal parts of the DC plug of the AC power adaptor. This may cause a short-circuit, damaging the AC power adaptor.

Remaining battery time indicator

The remaining battery time indicator in the display window roughly indicates the recording time with the viewfinder.

Battery pack

The battery pack is charged a little before it leaves the factory.

Until your camcorder calculates the actual remaining battery time

"---- min" appears in the display window.

Getting started

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Step 1 Preparing the power supply

Charging time

Battery pack	Full charge (Normal charge)
NP-F330 (supplied)	150 (90)
NP-F530/F550	210 (150)
NP-F730/F730H/F750	300 (240)
NP-F930/F950	390 (330)

Approximate number of minutes to charge an empty battery pack

Recording time

DCR-TRV203/TRV210

Battery pack	Recording with the viewfinder		Recording with the LCD screen	
	Continuous*	Typical**	Continuous*	Typical**
NP-F330 (supplied)	100 (90)	55 (50)	70 (80)	45 (40)
NP-F530	165 (150)	90 (85)	130 (115)	75 (65)
NP-F550	200 (180)	110 (100)	165 (145)	95 (80)
NP-F730	335 (300)	190 (170)	280 (250)	160 (140)
NP-F730H/F750	410 (365)	235 (205)	335 (295)	190 (170)
NP-F930	535 (480)	305 (275)	435 (390)	250 (225)
NP-F950	630 (570)	360 (325)	510 (460)	295 (265)

DCR-TRV310

Battery pack	Recording with the viewfinder		Recording with the LCD screen	
	Continuous*	Typical**	Continuous*	Typical**
NP-F330 (supplied)	100 (90)	55 (50)	75 (65)	40 (35)
NP-F530	165 (150)	90 (85)	120 (105)	65 (60)
NP-F550	200 (180)	110 (100)	145 (130)	80 (75)
NP-F730	335 (300)	190 (170)	265 (240)	150 (135)
NP-F730H/F750	410 (365)	235 (205)	305 (270)	175 (155)
NP-F930	535 (480)	305 (275)	415 (375)	240 (215)
NP-F950	630 (570)	360 (325)	475 (430)	275 (245)

DCR-TRV315

Battery pack	Recording with the viewfinder		Recording with the LCD screen	
	Continuous*	Typical**	Continuous*	Typical**
NP-F330 (supplied)	100 (90)	55 (50)	80 (70)	45 (40)
NP-F530	170 (155)	95 (85)	130 (115)	75 (65)
NP-F550	205 (185)	115 (105)	165 (145)	95 (80)
NP-F730	350 (310)	200 (175)	280 (250)	160 (140)
NP-F730H/F750	425 (380)	240 (215)	335 (295)	190 (170)
NP-F930	555 (500)	315 (285)	435 (390)	250 (225)
NP-F950	650 (590)	370 (335)	510 (460)	295 (265)

Approximate number of minutes when you use a fully charged battery

Numbers in parentheses "()" indicate the time using a normally charged battery.

* Approximate continuous recording time at 77°F (25°C). The battery life will be shorter if you use your camcorder in a cold environment.

** Approximate number of minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Step 1 Preparing the power supply

Playing time

DCR-TRV203/TRV210

Battery pack	Playing time on LCD screen	Playing time with LCD closed
NP-F330 (supplied)	80 (70)	95 (85)
NP-F530	125 (115)	160 (145)
NP-F550	155 (140)	195 (175)
NP-F730	275 (250)	325 (290)
NP-F730H/F750	325 (285)	395 (355)
NP-F930	430 (385)	515 (465)
NP-F950	495 (450)	610 (550)

DCR-TRV310

Battery pack	Playing time on LCD screen	Playing time with LCD closed
NP-F330 (supplied)	70 (65)	95 (85)
NP-F530	115 (105)	160 (145)
NP-F550	145 (130)	195 (175)
NP-F730	260 (235)	325 (290)
NP-F730H/F750	295 (265)	395 (355)
NP-F930	405 (370)	515 (465)
NP-F950	465 (420)	610 (550)

DCR-TRV315

Battery pack	Playing time on LCD screen	Playing time with LCD closed
NP-F330 (supplied)	80 (70)	100 (90)
NP-F530	125 (115)	165 (150)
NP-F550	155 (140)	200 (180)
NP-F730	275 (250)	335 (300)
NP-F730H/F750	325 (285)	410 (365)
NP-F930	430 (385)	535 (480)
NP-F950	495 (450)	630 (570)

Approximate number of minutes when you use a fully charged battery

Numbers in parentheses "()" indicate the time using a normally charged battery. The battery life will be shorter if you use your camcorder in a cold environment.


After charging the battery pack

Disconnect the AC power adaptor from the DC IN jack on your camcorder.

Note on the remaining battery time indicator during recording

The indicator may not be correct, depending on the conditions in which you are recording. When you close the LCD panel and open it again, it takes about 1 minute for the correct remaining battery time to be displayed.

What is "InfoLITHIUM"?

The "InfoLITHIUM" is a lithium ion battery pack which can exchange data such as battery consumption with compatible video equipment. This unit is compatible with the "InfoLITHIUM" battery pack (L series). Your camcorder operates only with the "InfoLITHIUM" battery. "InfoLITHIUM" battery packs have the  mark. "InfoLITHIUM" is a trademark of Sony Corporation.

Getting started

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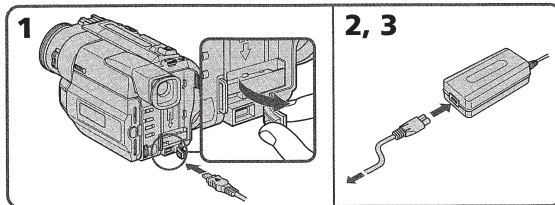
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Step 1 Preparing the power supply

Connecting to a wall outlet

When you use your camcorder for a long time, we recommend that you power it from a wall outlet using the AC power adaptor.

- (1) Open the DC IN jack cover, and connect the AC power adaptor to the DC IN jack on your camcorder with the plug's ▲ mark facing up.
- (2) Connect the power cord to the AC power adaptor.
- (3) Connect the power cord to a wall outlet.



WARNING

The power cord must only be changed at a qualified service shop.

PRECAUTION

The set is not disconnected from the AC power source (house current) as long as it is connected to the wall outlet, even if the set itself has been turned off.

Notes

- The AC power adaptor can supply power even if the battery pack is attached to your camcorder.
- The DC IN jack has "source priority". This means that the battery pack cannot supply any power if the power cord is connected to the DC IN jack, even when the power cord is not plugged into a wall outlet.
- Keep the AC power adaptor away from the camcorder if the picture is disturbed.

Using a car battery

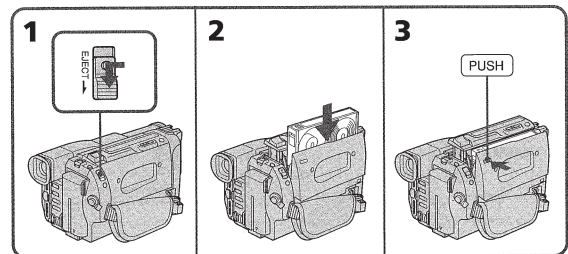
Use Sony DC Adaptor/Charger (not supplied).

Step 2 Inserting a cassette

We recommend using Hi8 video cassettes **Hi8**.

If you use standard 8 tape, be sure to play back the tape on this camcorder. Your camcorder records in the Digital8 system.

- (1) Slide EJECT in the direction of the arrow while pressing the small blue button. The cassette compartment automatically lifts up and opens.
- (2) Insert a cassette with its window facing out and the tab on the cassette up.
- (3) Close the cassette compartment by pressing the "PUSH" mark on the cassette compartment. The cassette compartment automatically goes down.



To eject a cassette

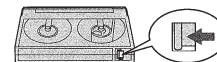
Slide EJECT in the direction of the arrow while pressing the small blue button.

Notes

- The recording time when you use your Digital8 system camcorder on Hi8/standard 8 tape is half the recording time when using the conventional Hi8/standard 8 system camcorder.
- If you use standard 8 tape, be sure to play back the tape on this camcorder. Mosaic pattern noise may appear when you play back standard 8 tape on other VCRs.
- Do not press the cassette compartment down. Doing so may cause malfunction.

To prevent accidental erasure

Slide the write-protect tab on the cassette to expose the red mark.



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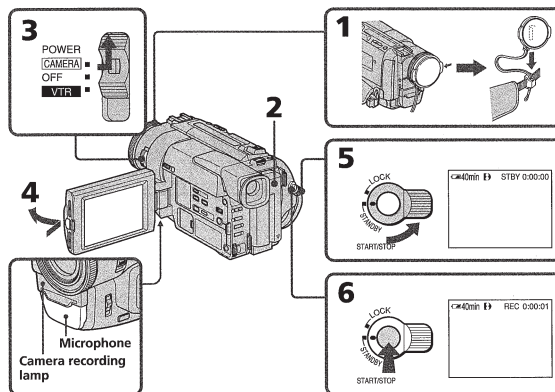
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— Recording - Basics —

Recording a picture

Your camcorder automatically focuses for you.

- (1) Remove the lens cap by pressing both knobs on its sides and attach the lens cap to the grip strap.
- (2) Install the power source and insert a cassette. See "Step 1" and "Step 2" for more information (p. 8 to 13).
- (3) Set the POWER switch to CAMERA while pressing the small green button.
- (4) Open the LCD panel while pressing OPEN. The viewfinder automatically turns off.
- (5) Turn STANDBY to STANDBY.
- (6) Press START/STOP. Your camcorder starts recording. The "REC" indicator appears. The camera recording lamp located on the front of your camcorder lights up. To stop recording, press START/STOP again. The recording lamp lights up in the viewfinder when you record with the viewfinder. (DCR-TRV203/TRV210/TRV310 only)



Note

Fasten the grip strap firmly. Do not touch the built-in microphone during recording.

To enable smooth transition

You can make the transition between the last scene you recorded and the next scene smooth as long as you do not eject the cassette. When you exchange the battery pack in the recording mode, set STANDBY to LOCK.

If you leave your camcorder in the standby mode for 3 minutes while the cassette is inserted

Your camcorder automatically turns off. This is to save battery power and to prevent battery and tape wear. To resume the standby mode, turn STANDBY down and up again. To start recording, press START/STOP.

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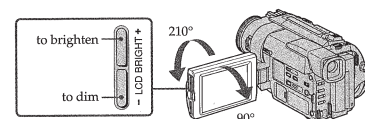
Recording a picture

Adjusting the LCD screen

To adjust the brightness of the LCD screen, press either of the two buttons on LCD BRIGHT.

The LCD panel moves about 90 degrees to the viewfinder side and about 210 degrees to the lens side.

If you turn the LCD panel over so that it faces the other way, the ☉ indicator appears in the viewfinder and on the LCD screen (**Mirror mode**).



When closing the LCD panel, set it vertically until it clicks, and swing it into the camcorder body.

Note

When using the LCD screen except in the mirror mode, the viewfinder automatically turns off.

When you use the LCD screen outdoors in direct sunlight

The LCD screen may be difficult to see. If this happens, we recommend that you use the viewfinder.

Picture in the mirror mode

The picture on the LCD is a mirror-image. However, the picture will be normal when recorded.

During recording in the mirror mode

While recording in the mirror mode, you cannot operate the following buttons: ZERO SET MEMORY on the Remote Commander and MENU on your camcorder.

Indicators in the mirror mode

The STBY indicator appears as **II** and REC as **●**. Some of the other indicators appear mirror-reversed and others are not displayed.

After recording

- (1) Turn STANDBY down to LOCK.
- (2) Close the LCD panel.
- (3) Eject the cassette.
- (4) Set the POWER switch to OFF.

Recording - Basics

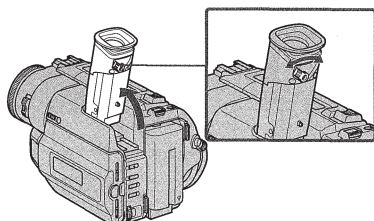
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Recording a picture

To record pictures with the viewfinder – adjusting the viewfinder

If you record pictures with the LCD panel closed, check the picture with the viewfinder. Adjust the viewfinder lens to your eyesight so that the indicators in the viewfinder come into sharp focus.

Lift up the viewfinder and move the viewfinder lens adjustment lever.



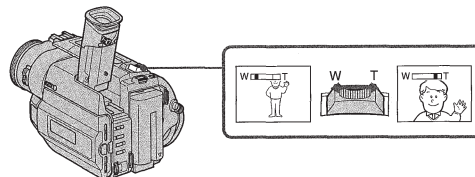
Recording a picture

Using the zoom feature

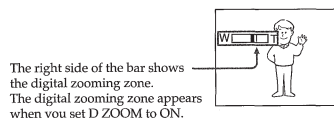
Move the power zoom lever a little for a slower zoom. Move it further for a faster zoom. Using the zoom function sparingly results in better-looking recordings.

"T" side: for telephoto (subject appears closer)

"W" side: for wide-angle (subject appears farther away)



Zoom greater than 20x is performed digitally, if you set D ZOOM to ON in the MENU settings. The digital zoom function is set OFF at the factory. (p. 54).



The right side of the bar shows the digital zooming zone. The digital zooming zone appears when you set D ZOOM to ON.

When you shoot close to a subject

If you cannot get a sharp focus, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 2 feet 5/8 inch (about 80 cm) away from the lens surface in the telephoto position, or about 1/2 inch (about 1 cm) away in the wide-angle position.

Notes on digital zoom

- Digital zoom starts to function when zoom exceeds 20x.
- The picture quality deteriorates as you go toward the "T" side. Set D ZOOM to OFF in the MENU settings. Otherwise the digital zoom activates without notice (p. 54).

Recording - Basics

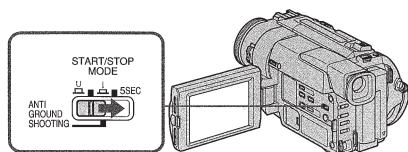
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Recording a picture

START/STOP MODE setting

- **START/STOP MODE**: Recording starts when you press START/STOP, and stops when you press it again (factory setting).
- **ANTI GROUND SHOOTING**: The camcorder records only while you press START/STOP. Use this mode to avoid recording unnecessary scenes.
- **5SEC**: When you press use this mode to START/STOP, your camcorder records for 5 seconds and then stops automatically.



Notes

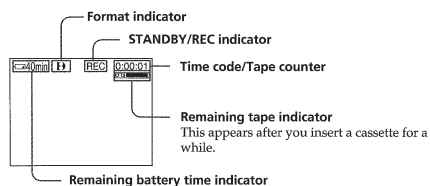
- You cannot use the fader function in the 5SEC or **ANTI GROUND SHOOTING** mode.
- The time code does not appear in the 5SEC mode.

To extend the recording time in the 5SEC mode

Five dots (●●●●●) appear, and then disappear at a rate of one per second. To extend the recording time, press START/STOP again before all the dots disappear. Recording continues for about 5 seconds from the moment you press START/STOP.

Indicators displayed in the recording mode

The indicators are not recorded on tape.



Time code (for tapes recorded in the Digital8 system only)

The time code indicates the recording or playback time, "0:00:00" (hours:minutes:seconds) in CAMERA mode and "0:00:00:00" (hours:minutes:seconds:frames) in VTR mode. You cannot rewrite only the time code. Your camcorder uses the drop frame mode. When you play back tapes recorded in the Hi8/standard 8 system, the tape counter appears.

Recording a picture

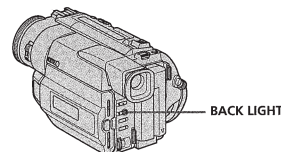
Shooting backlit subjects (BACK LIGHT)

When you shoot a subject with the light source behind the subject or a subject with a light background, use the backlight function.

Press BACK LIGHT in the recording or standby mode.

The **BACK LIGHT** indicator appears in the viewfinder or on the LCD screen.

To cancel, press BACK LIGHT again.



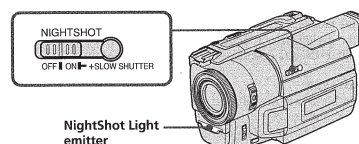
If you press EXPOSURE when shooting backlit subjects

The backlight function will be canceled.

Shooting in the dark (NightShot)

The NightShot function enables you to shoot a subject in a dark place. For example, you can satisfactorily record the environment of nocturnal animals for observation when you use this function.

- While your camcorder is in the standby mode, slide NIGHTSHOT to ON.
- Press START/STOP to start recording. **ON** and "NIGHTSHOT" indicators flash on the LCD screen or in the viewfinder. To cancel the NightShot function, slide NIGHTSHOT to OFF.



Recording - Basics

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Recording a picture

Using +SLOW SHUTTER

The NightShot +Slow shutter mode makes subjects more than four times brighter than those recorded in the NightShot mode.

- (1) Slide NIGHTSHOT to ON in the standby mode. indicator appears.
- (2) Press +SLOW SHUTTER until the desired NIGHTSHOT indicator flashes.
The indicator changes as follows:
 (NIGHTSHOT) → (NIGHTSHOT1) → (NIGHTSHOT2) → (NIGHTSHOT3)
To cancel the NightShot +Slow shutter mode, slide NIGHTSHOT to OFF.

Using the NightShot Light

The picture will be clearer with the NightShot Light on. To enable NightShot Light, set N.S.LIGHT to ON in the MENU settings (p. 54).

Notes

- Do not use the NightShot function in bright places (ex. outdoors in the daytime). This may cause your camcorder to malfunction.
- When you keep NIGHTSHOT set to ON in normal recording, the picture may be recorded in incorrect or unnatural colors.
- If focusing is difficult with the autofocus mode when using the NightShot function, focus manually.

While using the NightShot function, you can not use the following functions:

- Exposure
- PROGRAM AE
- Fader*
- Digital effect*

* You cannot use these functions only in the NightShot +Slow shutter mode.

Shutter speed in the NightShot +Slow shutter mode

Indicator	Shutter speed
(NIGHTSHOT1)	1/15
(NIGHTSHOT2)	1/4

The +SLOW SHUTTER button does not work:

- while the fader function is set or in use
- while the digital effect function is in use
- when NIGHTSHOT is set to OFF

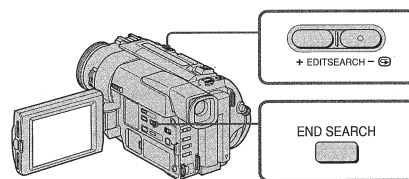
NightShot Light

NightShot Light rays are infrared and so are invisible. The maximum shooting distance using the NightShot Light is about 10 feet (3 m). The shooting distance will be twice or more in the NightShot +Slow shutter mode.

Checking the recording

- END SEARCH / EDITSEARCH / Rec Review

You can use these buttons to check the recorded picture or shoot so that the transition between the last recorded scene and the next scene you record is smooth.



END SEARCH

You can go to the end of the recorded section after you record.

Press END SEARCH in the standby mode.

The last 5 seconds of the recorded section are played back and playback stops. You can monitor the sound from the speaker or headphones.

EDITSEARCH

You can search for the next recording start point.

Hold down the +/-() side of EDITSEARCH in the standby mode. The recorded section is played back.

+ : to go forward

- : to go backward

Release EDITSEARCH to stop playback. If you press START/STOP, re-recording begins from the point you released EDITSEARCH. You cannot monitor the sound.

Rec Review

You can check the last recorded section.

Press the - () side of EDITSEARCH momentarily in the standby mode.

The last 5 seconds of the recorded section are played back. You can monitor the sound from the speaker or headphones.

Notes

- END SEARCH, EDITSEARCH and Rec Review work only for tapes recorded in the Digital8 system.
- If you start recording after using the end search function, occasionally, the transition between the last scene you recorded and the next scene may not be smooth.
- The end search function may not work when there is a blank portion between pictures on a tape.

Once you eject the cassette after you have recorded on the tape

The end search function does not work.

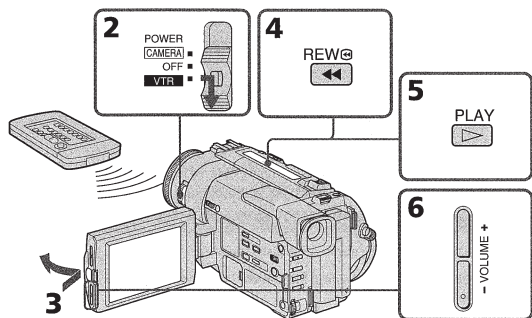
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Playback - Basics

Playing back a tape

You can monitor the playback picture on the LCD screen or in the viewfinder. You can control playback using the Remote Commander supplied with your camcorder.

- (1) Install the power source and insert the recorded tape.
- (2) Set the POWER switch to VTR while pressing the small green button. The video control buttons light up.
- (3) Open the LCD panel while pressing OPEN.
- (4) Press to rewind the tape.
- (5) Press to start playback.
- (6) To adjust the volume, press either of the two buttons on VOLUME. The speaker on your camcorder is silent when the LCD panel is closed.

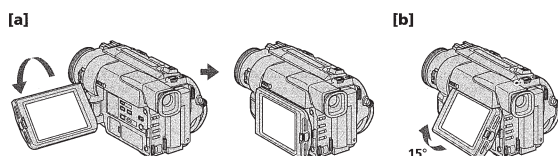


To stop playback

Press .

When monitoring on the LCD screen

You can turn the LCD panel over and move it back to the camcorder body with the LCD screen facing out **[a]**. You can adjust the angle of the LCD panel by lifting the LCD panel up by 15 degrees **[b]**.



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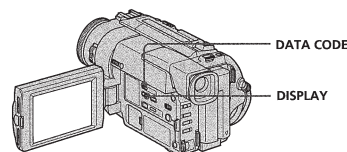
Playing back a tape

To display the screen indicators - Display function

Press DISPLAY on your camcorder or the Remote Commander supplied with your camcorder.

The indicators appear on the LCD screen.

To make the indicators disappear, press DISPLAY again.



Using the data code function

Your camcorder automatically records not only images on the tape but also the recording data (date/time or various settings when recorded) (**Data code function**).

Press DATA CODE on your camcorder or the Remote Commander in the play back mode.

The display changes as follows:

date/time → various settings (SteadyShot, exposure AUTO/MANUAL, white balance, gain, shutter speed, aperture value) → no indicator



Not to display recording data

Set DATA CODE to DATE in the MENU settings (p. 54).

The display changes as follows:

date/time → no indicator

Note on the data code function

The data code function works only for tapes recorded in the Digital8 system.

Recording data

Recording data is your camcorder's information when you have recorded. In the recording mode, the recording data will not be displayed.

When you use data code function, bars (---) appear if:

- A blank section of the tape is being played back.
- The tape is unreadable due to tape damage or noise.
- The tape was recorded by a camcorder without the date and time set.

Recording - Basics

Playback - Basics

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Playing back a tape

Various playback modes

To operate control buttons, set the POWER switch to VTR.

To view a still picture (playback pause)

Press **II** during playback. To resume playback, press **II** or **▶**.

To advance the tape

Press **▶▶** in the stop mode. To resume normal playback, press **▶**.

To rewind the tape

Press **◀◀** in the stop mode. To resume normal playback, press **▶**.

To change the playback direction

Press **<** on the Remote Commander during playback to reverse the playback direction. To resume normal playback, press **▶**.

To locate a scene monitoring the picture (picture search)

Keep pressing **◀◀** or **▶▶** during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing or rewinding the tape (skip scan)

Keep pressing **◀◀** while rewinding or **▶▶** while advancing the tape. To resume rewinding or advancing, release the button.

To view the picture at slow speed (slow playback)

Press **⏮** on the Remote Commander during playback. For slow playback in the reverse direction, press **<**, then press **⏮** on the Remote Commander. To resume normal playback, press **▶**.

To view the picture at double speed

Press **⏭** on the Remote Commander during playback. For double speed playback in the reverse direction, press **<**, then press **⏭** on the Remote Commander. To resume normal playback, press **▶**.

To view the picture frame-by-frame

Press **⏮** on the Remote Commander in the playback pause mode. For frame-by-frame playback in the reverse direction, press **<**. To resume normal playback, press **▶**.

To search the last scene recorded (END SEARCH)

Press END SEARCH in the stop mode. The last 5 seconds of the recorded section plays back and stops.

In the various playback modes

- Noise may appear when your camcorder plays back tapes recorded in the Hi8/standard 8 system.
- Sound is muted.
- The previous recording may appear as a mosaic image when playing back in the Digital8 system.

When the playback pause mode lasts for 3 minutes

- Your camcorder automatically enters the stop mode. To resume playback, press **▶**.
- The previous recording may appear.

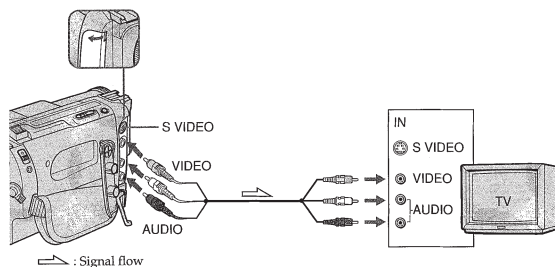
Slow playback for tapes recorded in the Digital8 system

The slow playback can be performed smoothly on your camcorder; however, this function does not work for an output signal from the **⏮** DV IN/OUT jack.

Viewing the recording on TV

Connect your camcorder to your TV or VCR with the A/V connecting cable supplied with your camcorder to watch the playback picture on the TV screen. You can operate the playback control buttons in the same way as when you monitor playback pictures on the LCD screen. When monitoring the playback picture on the TV screen, we recommend that you power your camcorder from a wall outlet using the AC power adaptor (p. 12). Refer to the operating instructions of your TV or VCR.

Open the jack cover. Connect your camcorder to the TV using the A/V connecting cable. Then, set the TV/VCR selector on the TV to VCR.



If your TV is already connected to a VCR

Connect your camcorder to the LINE IN input on the VCR by using the A/V connecting cable supplied with your camcorder. Set the input selector on the VCR to LINE.

If your TV or VCR is a monaural type

Connect the yellow plug for video and the white plug for audio on both your camcorder and the TV or the VCR (you do not connect the red plug). With this connection, the sound is monaural even on stereo models.

To connect to a TV or VCR without Video/Audio input jacks

Use an NTSC system RFU adaptor (not supplied). Refer to the operating instructions of your TV or VCR and the RFU adaptor. With an RFU adaptor, the sound is monaural.

If your TV or VCR has an S video jack

Connect using an S video cable (not supplied) to obtain high-quality pictures. With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.

Connect the S video cable (not supplied) to the S video jacks on both your camcorder and the TV or the VCR.

Playback - Basic

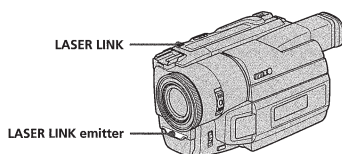
24

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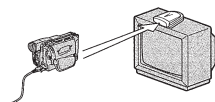
Viewing the recording on TV

Using the AV cordless IR receiver

Once you connect the AV cordless IR receiver (not supplied) to your TV or VCR, you can easily view the picture on your TV. For details, refer to the operating instructions of the AV cordless IR receiver.



- (1) After connecting your TV and AV cordless IR receiver, set the POWER switch on the AV cordless IR receiver to ON.
- (2) Turn the TV on and set the TV/VCR selector on the TV to VCR.
- (3) Press LASER LINK. The lamp of LASER LINK lights up.
- (4) Press **▶** on your camcorder to start playback.
- (5) Point the LASER LINK emitter at the AV cordless IR receiver. Adjust the position of your camcorder and the AV cordless IR receiver to obtain clear playback pictures.



To cancel the laser link function

Press LASER LINK. The lamp on the LASER LINK button goes out.

If you turn the power off

Laser link turns off automatically.

If you use a Sony TV

- You can turn on the TV automatically when you press LASER LINK or **▶**. To do so, set AUTO TV ON to ON in the MENU settings and turn the TV's main switch on, then do either of the following:
 - Point the LASER LINK emitter at the TV's remote sensor and press LASER LINK.
 - Turn on LASER LINK and press **▶**.
- You can switch the video input of the TV automatically to the one which the AV cordless IR receiver is connected. To do so, set AUTO TV ON to ON and TV INPUT to the same video input (1, 2, 3) in the MENU settings. With some models, however, the picture and sound may be disconnected momentarily when the video input is switched.
- The above feature may not work on some TV models.

Note

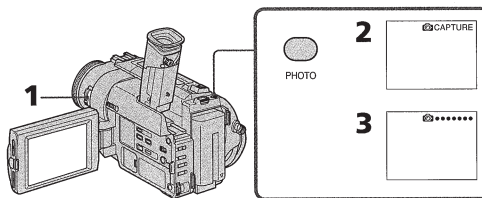
When laser link is activated (the LASER LINK button is lit), your camcorder consumes power. Press LASER LINK to turn off the laser link function when it is not needed.

— Advanced Recording Operations —

Photo recording

You can record a still picture like a photograph. This mode is useful when you want to record a picture such as a photograph or when you print a picture using a video printer (not supplied).

- (1) Set the POWER switch to CAMERA.
- (2) In the standby mode, keep pressing PHOTO lightly until a still picture appears. The CAPTURE indicator appears. Recording does not start yet. To change the still picture, release PHOTO, select a still picture again, and then press and hold PHOTO lightly.
- (3) Press PHOTO deeper.
 - The still picture in the viewfinder or on the LCD screen is recorded for about seven seconds. The sound during those seven seconds is also recorded.
 - During recording, the image you are shooting appears in the viewfinder or on the LCD screen.



Notes

- During photo recording, you cannot change the mode or setting.
- During photo recording, you cannot turn your camcorder off or press the PHOTO button.
- The PHOTO button does not work:
 - while the digital effect function is set or in use.
 - while the fader function is in use.
- When recording a still picture, do not shake your camcorder. The picture may fluctuate.

To use the photo recording function using the Remote Commander

Press PHOTO in the Remote Commander. Your camcorder record a picture on the LCD screen or in the viewfinder immediately.

To use the photo recording function during normal CAMERA recording

Press PHOTO deeper. The still picture is then recorded for about seven seconds and your camcorder returns to the standby mode. You cannot select another still picture.

Advanced Recording Operations

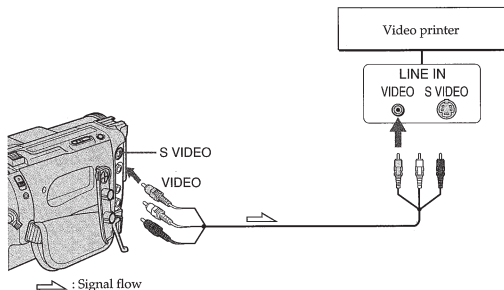
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Photo recording

Printing the still picture

You can print a still picture by using the video printer (not supplied). Connect the video printer using the A/V connecting cable supplied with your camcorder. Connect the yellow plug of the cable to the VIDEO jack and to the video input of the video printer. Refer to the operating instructions of the video printer as well.

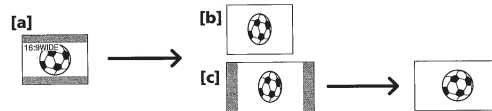


If the video printer is equipped with S video input

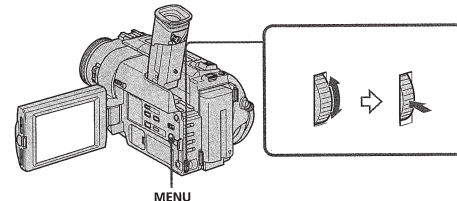
Use the S video connecting cable (not supplied). Connect it to the S VIDEO jack and the S video input of the video printer.

Using the wide mode

You can record a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9 WIDE). The picture with black bands at the top and the bottom on the LCD screen or in the viewfinder (DCR-TRV315 only) [a] is normal. The picture on a normal TV or in the viewfinder (DCR-TRV203/TRV210/TRV310 only) [b] is horizontally compressed. You can watch the picture of normal images on a wide-screen TV [c].



In the standby mode, set 16:9WIDE to ON in the MENU settings (p. 54).



To cancel the wide mode

Set 16:9WIDE to OFF in the MENU settings.

If the wide mode is set to ON

The SteadyShot function does not work. If you set 16:9WIDE to ON in the MENU settings when the SteadyShot function is working, "SS" flashes and the SteadyShot function does not function.

In the wide mode

You cannot select the old movie function with DIGITAL EFFECT and the bounce function with FADER.

During recording

You cannot select or cancel the wide mode.

Connection for a TV

Picture recorded in the 16:9WIDE mode automatically appear on the TV screen at full size when:

- you connect your camcorder to a TV that is compatible with the video ID (ID-1/ID-2) system.
- you connect your camcorder to the S video jack on the TV.

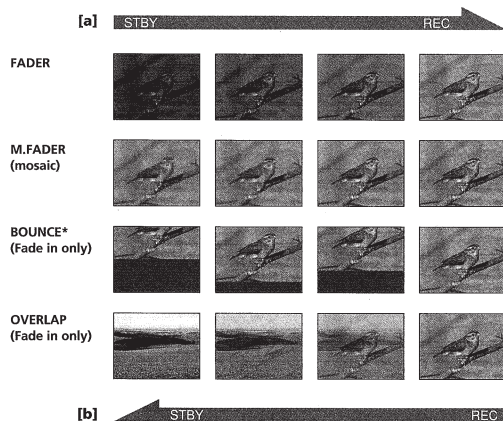
ID-2 system

The ID-2 system is a system which converts the copyright signal to the analog system with ID-1 signals inserted between video signals.

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Using the fader function

You can fade in or out to give your recording a professional appearance.



MONOTONE

When fading in, the picture gradually changes from black-and-white to color. When fading out the picture gradually changes from color to black-and-white.

* You cannot use this function when D ZOOM is set to ON in the MENU settings.

Using the fader function

(1) When fading in [a]

In the standby mode, press FADER until the desired fader indicator flashes.

When fading out [b]

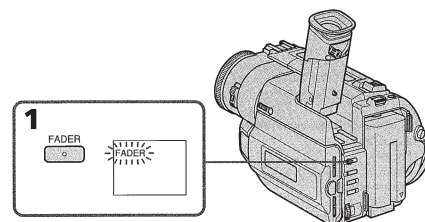
In the recording mode, press FADER until the desired fader indicator flashes.

The indicator changes as follows:

FADER → M.FADER → BOUNCE → MONOTONE → OVERLAP → no indicator

The last selected fader mode is indicated first of all.

(2) Press START/STOP. The fader indicator stops flashing.



To cancel the fader function

After the fade in/out is carried out : Your camcorder automatically returns to the normal mode.

Before the fade in/out is carried out : Before pressing START/STOP, press FADER until the indicator disappears.

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Using the Fader function

Note

- The overlap function works only for tapes recorded in the Digital8 system.
- You cannot use the following functions while using the fader function. Also, you cannot use the fader function while using the following functions.
 - Digital effect
 - Low lux mode of PROGRAM AE (Overlap function only)
 - NightShot + Slow shutter
 - Photo recording

When the OVERLAP indicator appears

The camcorder automatically memorizes the image recorded on a tape. As the image is being memorized, the OVERLAP indicator flashes fast, and the playback picture is displayed. At this stage, the picture may not be recorded clearly, depending on the tape condition.

When START/STOP MODE is set to 1 or 5SEC

You cannot use the fader function.

While using the bounce function, you cannot use the following functions:

- Exposure
- Focus
- Zoom
- Picture effect

Note on the bounce function

The BOUNCE indicator does not appear in the following mode or functions:

- D ZOOM is set to ON in the MENU settings
- Wide mode
- Picture effect
- PROGRAM AE

Using special effects – Picture effect

You can digitally process images to obtain special effects like those in films or on the TV.

NEG. ART [a] : The color and brightness of the picture is reversed.

SEPIA : The picture is sepia.

B&W : The picture is monochrome (black-and-white).

SOLARIZE [b] : The light intensity is clearer, and the picture looks like an illustration.

SLIM [c] : The picture expands vertically.

STRETCH [d] : The picture expands horizontally.

PASTEL [e] : The contrast of the picture is emphasized, and the picture looks like an animated cartoon.

MOSAIC [f] : The picture is mosaic.



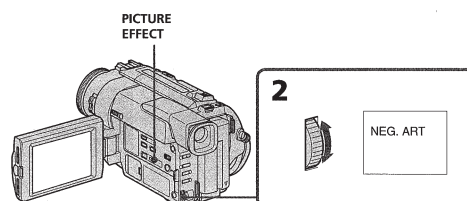
(1) Press PICTURE EFFECT in the standby or recording mode.

The picture effect indicator appears.

(2) Turn the SEL/PUSH EXEC dial to select the desired picture effect mode.

The indicator changes as follows:

NEG.ART ↔ SEPIA ↔ B&W ↔ SOLARIZE ↔ SLIM ↔ STRETCH ↔
PASTEL ↔ MOSAIC



To turn the picture effect function off

Press PICTURE EFFECT.

While using the picture effect function

You cannot select the old movie mode with DIGITAL EFFECT.

When you turn the power off

Your camcorder automatically returns to the normal mode.

Advanced Recording Operations

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Using special effects – Digital effect

You can add special effects to recorded pictures using the various digital functions. The sound is recorded normally.

STILL

You can record a still picture so that it is superimposed on a moving picture.

FLASH (FLASH MOTION)

You can record still pictures successively at constant intervals.

LUMI. (LUMINANCEKEY)

You can swap a brighter area in a still picture with a moving picture.

TRAIL

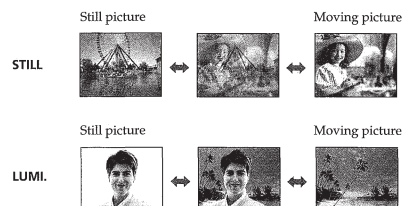
You can record the picture so that an incidental image like a trail is left.

SLOW SHTR (SLOW SHUTTER)

You can slow down the shutter speed. The slow shutter mode is good for recording dark pictures more brightly. However, the picture may be less clear.

OLD MOVIE

You can add an old movie type atmosphere to pictures. Your camcorder automatically sets the wide mode to ON, picture effect to SEPIA, and the appropriate shutter speed.



Using special effects – Digital effect

(1) While your camcorder is in the standby or recording mode, press DIGITAL EFFECT. The digital effect indicator appears.

(2) Turn the SEL/PUSH EXEC dial to select the desired digital effect mode.

The indicator changes as follows:

STILL ↔ FLASH ↔ LUMI. ↔ TRAIL ↔ SLOW SHTR ↔ OLD MOVIE

(3) Press the SEL/PUSH EXEC dial. The indicator lights up and the bars appear.

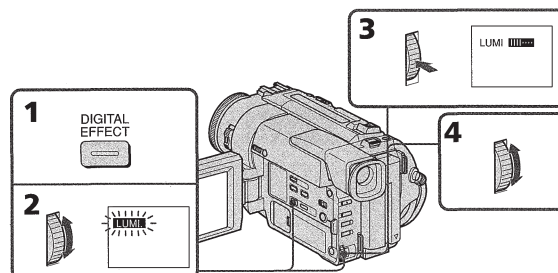
In the STILL and LUMI. modes, the still picture is stored in memory.

(4) Turn the SEL/PUSH EXEC dial to adjust the effect.

Items to adjust

STILL	The rate of the still picture you want to superimpose on the moving picture
FLASH	The interval of flash motion
LUMI.	The color scheme of the area in the still picture which is to be swapped with a moving picture
TRAIL	The vanishing time of the incidental image
SLOW SHTR	Shutter speed. The larger the shutter speed number, the slower the shutter speed.
OLD MOVIE	No adjustment necessary

The more bars there are on screen, the stronger the digital effect. The bars appear in the following modes: STILL, FLASH, LUMI. and TRAIL.



To cancel the digital effect

Press DIGITAL EFFECT. The digital effect indicator disappears.

Advanced Recording Operations

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Using special effects – Digital Effect

Notes

- The following functions do not work during digital effect:
 - Fader
 - Low lux mode of PROGRAM AE
 - Photo recording
 - NightShot +Slow shutter
- The following functions do not work in the slow shutter mode:
 - Exposure
 - PROGRAM AE
- The following functions do not work in the old movie mode:
 - Exposure
 - Wide mode
 - Picture effect
 - PROGRAM AE

When you turn the power off

The digital effect will be automatically canceled.

When recording in the slow shutter mode

Auto focus may not be effective. Focus manually using a tripod.

Shutter speed

Shutter speed number	Shutter speed
SLOW SHTR 1	1/30
SLOW SHTR 2	1/15
SLOW SHTR 3	1/8
SLOW SHTR 4	1/4

Using the PROGRAM AE function

You can select PROGRAM AE (Auto Exposure) mode to suit your specific shooting requirements.

Spotlight mode

This mode prevents people's faces, for example, from appearing excessively white when shooting subjects lit by strong light at weddings or in the theater.

Soft portrait mode

This mode brings out the subject while creating a soft background for subjects such as people or flowers, and faithfully reproduces skin color.

Sports lesson mode

This mode minimizes shake on fast-moving subjects such as in tennis or golf.

Beach & ski mode

This mode prevents people's faces from appearing dark in strong light or reflected light, such as at a beach in midsummer or on a ski slope.

Sunset & moon mode

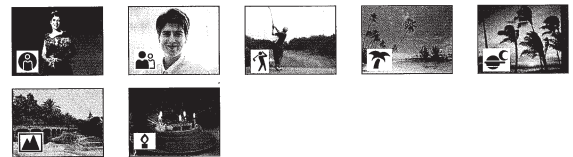
This mode allows you to maintain atmosphere when you are recording sunsets, general night views, fireworks displays and neon signs.

Landscape mode

This mode is for when you are recording distant subjects such as mountains and prevents your camcorder from focusing on glass or metal mesh in windows when you are recording a subject behind glass or a screen.

Low lux mode

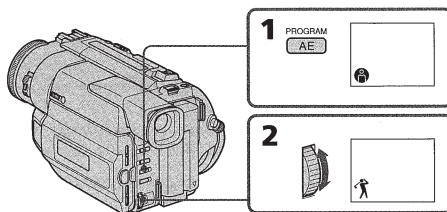
This mode makes subjects brighter in insufficient light.



Using the PROGRAM AE function

- Press PROGRAM AE in the standby mode. The PROGRAM AE indicator appears.
- Turn the SEL/PUSH EXEC dial to select the desired PROGRAM AE mode. The indicator changes as follows:

↔
 ↔
 ↔
 ↔
 ↔
 ↔



To turn the PROGRAM AE function off

Press PROGRAM AE.

Notes

- In the spotlight, sports lesson and beach & ski modes, you cannot take close-ups. This is because your camcorder is set to focus only on subjects in the middle to far distance.
- In the sunset & moon and landscape modes, your camcorder is set to focus only on distant subjects.
- The following functions do not work in the PROGRAM AE mode:
 - Slow shutter
 - Old movie
 - Bounce
- The following functions do not work in the low lux mode:
 - Digital effect
 - Overlap
 - Exposure
- If you press PROGRAM AE when using the NightShot function, the PROGRAM AE indicator flashes and the PROGRAM AE function does not work.

If you are recording under a discharge tube such as a fluorescent lamp, sodium lamp or mercury lamp

Flickering or changes in color may occur in the following modes. If this happens, turn the PROGRAM AE function off.

- Soft portrait mode
- Sports lesson mode

Adjusting the exposure manually

You can manually adjust and set the exposure. When you turn your camcorder on, it will automatically be in the automatic exposure mode. This mode works to record subjects so that they are recorded slightly brighter than they actually are.

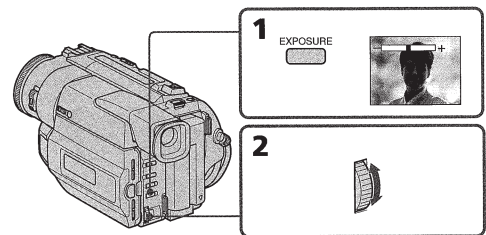
Adjust the exposure manually in the following cases:

- The subject is backlit
- Bright subject and dark background
- To record dark pictures (e.g. night scenes) faithfully

- Press EXPOSURE in the standby or recording mode.

The exposure indicator appears.

- Turn the SEL/PUSH EXEC dial to adjust the brightness.



To return to the automatic exposure mode

Press EXPOSURE again.

Note

When you adjust the exposure manually, the following function and modes do not work:

- Backlight
- Slow shutter
- Old movie

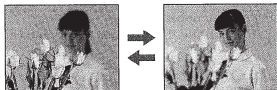
If you change the PROGRAM AE mode or slide NIGHTSHOT to ON

Your camcorder automatically returns to the automatic exposure mode.

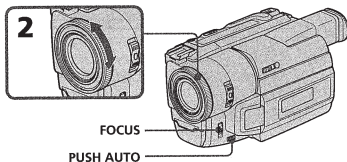
Focusing manually

You can gain better results by manually adjusting the focus in the following cases:

- The autofocus mode is not effective when shooting
 - subjects through glass coated with water droplets
 - horizontal stripes
 - subjects with little contrast with backgrounds such as walls and sky
- When you want to change the focus from a subject in the foreground to a subject in the background
- Shooting a stationary subject when using a tripod



- (1) Set FOCUS to MANUAL in the standby or recording mode. The indicator appears.
- (2) Turn the focus ring to sharpen focus.



To return to the autofocus mode
Set FOCUS to AUTO.

To record distant subjects

When you press FOCUS down to INFINITY. The lens focuses on and indicator appears. When you release FOCUS, your camcorder returns to the manual focus mode. Use this mode when your camcorder focuses on near objects even though you are trying to shoot a distant object.

To shoot with auto focusing momentarily

Press PUSH AUTO.
The auto focus functions while you are pressing PUSH AUTO.
Use this button to focus on one subject and then another with smooth focusing.
When you release PUSH AUTO, manual focusing resumes.

Shooting in relatively dark places or shooting fast-moving subjects in relatively bright places
Shoot at the "W" (wide-angle) position after focusing at the "T" (telephoto) position.

When you shoot close to the subject

Focus at the end of the "W" (wide-angle) position.

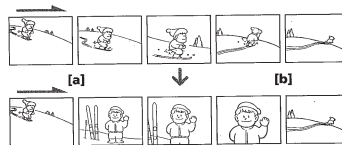
The following indicators may appear

- when recording a distant subject.
- when the subject is too close to focus on.

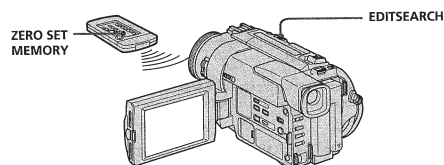
40

Inserting a scene

You can insert a scene in the middle of a recorded tape by setting the start and end points. The previously recorded frames between these start and end points will be erased. Use the Remote Commander for this operation.



- (1) While your camcorder is in the standby mode, keep pressing EDITSEARCH, and release the button at the insert end point [b].
- (2) Press ZERO SET MEMORY. The ZERO SET MEMORY indicator flashes and the tape counter resets to zero.
- (3) Keep pressing the side of EDITSEARCH and release the button at the insert start point [a].
- (4) Press START/STOP to start recording. The scene is inserted. Recording stops automatically at the tape counter zero point. Your camcorder returns to the standby mode.



Notes

- The zero set memory function works only for tapes recorded in the Digital8 system.
- The picture and the sound may be distorted at the end of the inserted section when it is played back.

If you re-record on the section which contains a non-recorded section
The zero set memory function may not work correctly.

When START/STOP MODE is set to $\frac{1}{2}$ or 5SEC
You cannot use the zero set memory function.

Advanced Recording Operations

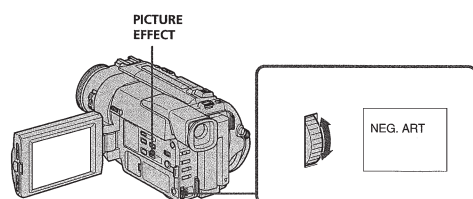
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— Advanced Playback Operations —

Playing back a tape with picture effects

During playback, you can process a scene using the picture effect functions: NEG.ART, SEPIA, B&W and SOLARIZE.

During playback, press PICTURE EFFECT and turn the SEL/PUSH EXEC dial until the desired picture effect indicator (NEG.ART, SEPIA, B&W or SOLARIZE) flashes.
For details of each picture effect function, see page 33.



To cancel the picture effect function
Press PICTURE EFFECT.

Notes

- The picture effect function works only for tapes recorded in the Digital8 system.
- You cannot process externally input scenes using the picture effect function.
- To record pictures that you have processed using the picture effect function, record the pictures on the VCR.

Pictures processed by the picture effect function

Picture processed by the picture effect function are not output through the DV IN/OUT jack.

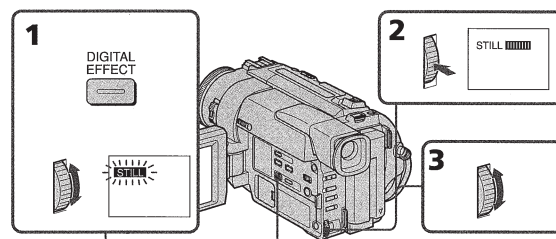
When you set the POWER switch to OFF or stop playing back
The picture effect function is automatically canceled.

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Playing back a tape with digital effects

During playback, you can process a scene using the digital effect functions: STILL, FLASH, LUMI. and TRAIL.

- (1) During playback, press DIGITAL EFFECT and turn the SEL/PUSH EXEC dial until the desired digital effect indicator (STILL, FLASH, LUMI. or TRAIL) flashes.
- (2) Press the SEL/PUSH EXEC dial.
The digital effect indicator lights up and the bars appear. In the STILL or LUMI. mode, the picture where you press the SEL/PUSH EXEC dial is stored in memory as a still picture.
- (3) Turn the SEL/PUSH EXEC dial to adjust the effect.
For details of each digital effect function, see page 34.



To cancel the digital effect function
Press DIGITAL EFFECT.

Notes

- The digital effect function works only for tapes recorded in the Digital8 system.
- You cannot process externally input scenes using the digital effect function.
- To record pictures that you have processed using the digital effect function, record the pictures on the VCR.

Pictures processed by the digital effect function

Picture processed by the digital effect function are not output through the DV IN/OUT jack.

When you set the POWER switch to OFF or stop playing back
The digital effect function is automatically canceled.

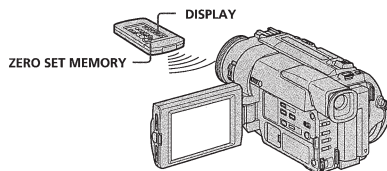
Advanced Playback Operations

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Quickly locating a scene using the zero set memory function

Your camcorder goes forward or backward to automatically stop at a desired scene having a tape counter value of "0:00:00". Use the Remote Commander for this operation. Use this function, for example, to view a desired scene later on during playback.

- (1) In the playback mode, press DISPLAY.
- (2) Press ZERO SET MEMORY at the point you want to locate later. The tape counter shows "0:00:00" and the ZERO SET MEMORY indicator flashes.
- (3) Press ■ when you want to stop playback.
- (4) Press ◀ to rewind the tape to the tape counter's zero point. The tape stops automatically when the tape counter reaches approximately zero. The ZERO SET MEMORY indicator disappears and the time code appears.
- (5) Press ▶. Playback starts from the tape counter's zero point.



Notes

- The zero set memory function works only for tapes recorded in the Digital8 D system.
- When you press ZERO SET MEMORY before rewinding the tape, the zero set memory function will be canceled.
- There may be a discrepancy of several seconds from the time code.
- The zero set memory function may not work when there is a blank portion between pictures on a tape.

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Searching a recording by date

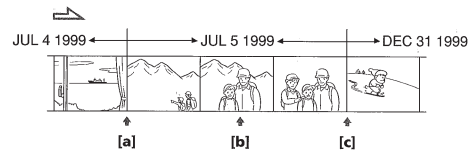
Notes on the date search mode

- The date search works only for tapes recorded in the Digital8 D system.
- If one day's recording is less than one minute, your camcorder may not accurately find the point where the recording date changes.

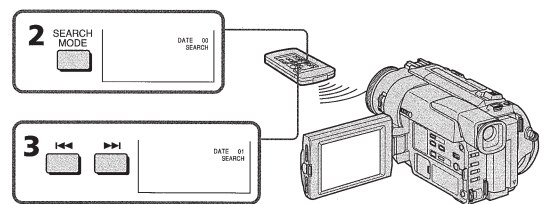
If a tape has a blank portion in the recorded portions
The date search function will not work correctly.

Searching a recording by date

You can automatically search for the point where the recording date changes and start playback from that point (**Date search**). Use the Remote Commander for this operation. Use this function to check where recording dates change or to edit the tape at each recording date.



- (1) Set the POWER switch to VTR.
- (2) Press SEARCH MODE on the Remote Commander repeatedly, until the date search indicator appears.
The indicator changes as follows:
DATE SEARCH → PHOTO SEARCH → PHOTO SCAN → no indicator
- (3) When the current position is [b], press ◀ to search towards [a] or press ▶ to search towards [c]. Your camcorder automatically starts playback at the point where the date changes.
Each time you press ◀ or ▶, the camcorder searches for the previous or next date.



To stop searching
Press ■.

Advanced Playback Operations

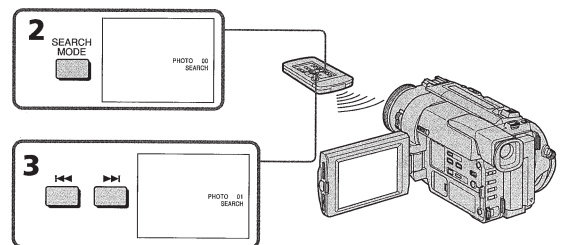
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Searching for a photo – Photo search/ Photo scan

You can search for the recorded still picture (**photo search**). You can also search for still pictures one after another and display each picture for five seconds automatically (**photo scan**). Use the Remote Commander for these operations.

Searching for a photo

- (1) Set the POWER switch to VTR.
- (2) Press SEARCH MODE on the Remote Commander repeatedly, until the photo search indicator appears.
The indicator changes as follows:
DATE SEARCH → PHOTO SEARCH → PHOTO SCAN → no indicator
- (3) Press ◀ or ▶ to select the photo for playback. Each time you press ◀ or ▶, the camcorder searches for the previous or next photo. Your camcorder automatically starts playback from the photo.



To stop searching
Press ■.

If a tape has a blank portion in the recorded portions
The photo search function may not work correctly.

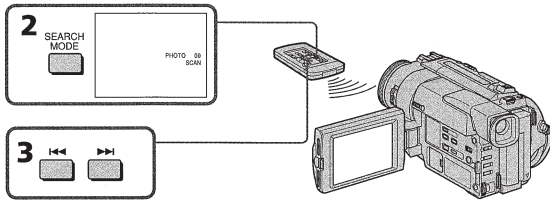
Advanced Playback Operations

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Scanning photo

- (1) Set the POWER switch to VTR.
- (2) Press SEARCH MODE on the Remote Commander repeatedly, until the photo scan indicator appears.
The indicator changes as follows:
DATE SEARCH → PHOTO SEARCH → PHOTO SCAN → no indicator
- (3) Press ◀◀ or ▶▶.
Each photo is played back for about 5 seconds automatically.

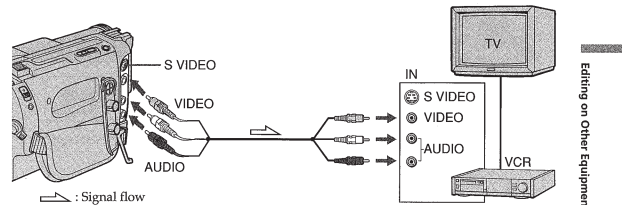


Press **■**.

The photo search and photo scan work only for tapes recorded in the Digital8 system.

Dubbing a tape

- (1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
- (2) Set the POWER switch to VTR.
- (3) Play back the recorded tape on your camcorder.
- (4) Start recording on the VCR.



Press **■** on both your camcorder and the VCR.

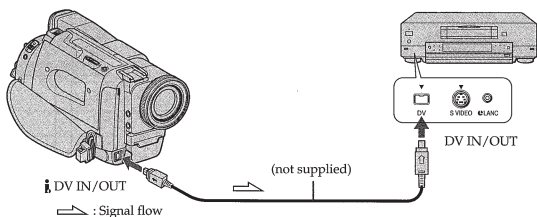
You can edit on VCRs that support the following systems
8 8 mm, **Hi8** Hi8, **VHS** VHS, **S-VHS** S-VHS, **VHS-C** VHS-C, **S-VHS-C** S-VHS-C, **B** Betamax, **ED Beta** ED Betamax, **mini DV** mini DV, **DV** DV or **D** Digital8

Connect using an S video cable (not supplied) to obtain high-quality pictures
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.

Connect an S video cable (not supplied) to the S video jacks of both your camcorder and the VCR.

To perform a more precise editing
Connect a LANC cable (not supplied) to your camcorder and other video equipment having fine synchro-editing function, using this camcorder as a player.

- (1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
- (2) Set the POWER switch to VTR.
- (3) Play back the recorded tape on your camcorder.
- (4) Start recording on the VCR.



Press **■** on both your camcorder and the VCR.

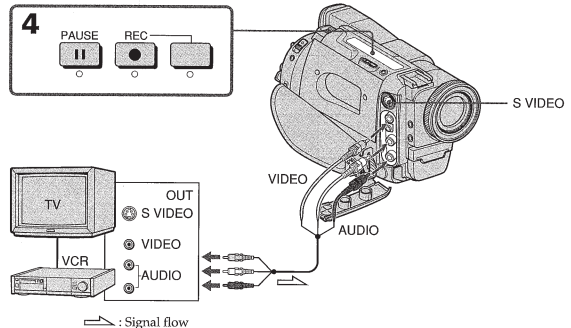
During playback of tapes recorded in the Hi8/ standard 8 system
Digital signals are output as the image signals from the DV IN/OUT jack.

You cannot use DIGITAL EFFECT button functions.

- You can use your camcorder as a player or recorder without changing the connection. In this case, the DV IN indicator appears in the viewfinder or on screen. The DV IN indicator may appear on both equipment.
- When using your camcorder as a recorder, the color balance may be incorrect on the monitor screen. This, however, is not recorded on the tape.

If you record playback pause picture via the DV jack
The recorded picture becomes rough. Also, when you play back the recorded pictures on other video equipment, the picture may jitter.

- (1) Insert a blank tape (or a tape you want to record over) into your camcorder. If you are recording a tape from the VCR, insert a recorded tape into the VCR.
- (2) Set the POWER switch to VTR.
- (3) Set DISPLAY to LCD in the MENU settings (p. 54). The picture from a TV or VCR appears in the viewfinder or on the LCD screen.
- (4) Press **●** REC and the button on its right simultaneously on your camcorder, then immediately press **II** on your camcorder.
- (5) Press **II** on the VCR to start playback if you are recording a tape from VCR. Select a TV program if you are recording from TV.
- (6) Press **II** on your camcorder at the scene where you want to start recording from.



- To enable smooth transition, we recommend that you do not mix pictures recorded in the Hi8/standard 8 with the Digital8 system on a tape.
- If you fast-forward or slow-playback on the other equipment, the image being recorded may turn back and white. When recording from other equipment, be sure to play back the original tape at normal speed.

Connect using an S video cable (not supplied) to obtain high-quality pictures
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (not supplied) to the S video jacks of both your camcorder and VCR.

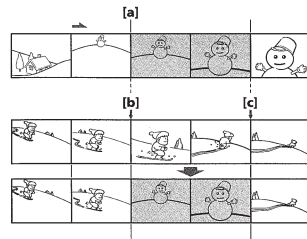
If your VCR or TV does not have an S video out jack, do not connect an S video cable (not supplied) to your camcorder. If you connect an S video cable, the picture may not appear on screen.

Inserting a scene from a VCR

Replacing recording on a tape – Insert Editing

You can insert a new scene from a VCR onto your originally recorded tape by specifying the insert start and end points. Use the Remote Commander for this operation. Connections are the same as in "Recording video or TV programs" on page 51.

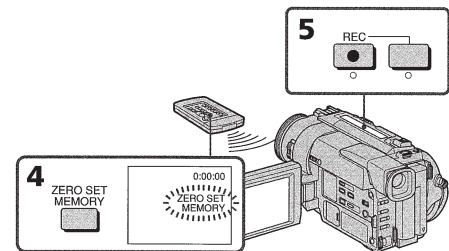
Insert a cassette containing the desired scene into the VCR.



Inserting a scene from a VCR

- (1) Set the POWER switch to VTR.
- (2) On the VCR, locate just before the insert start point [a], then press **II** to set the VCR to the playback pause mode.
- (3) On your camcorder, locate the insert end point [c] by pressing **◀◀** or **▶▶**. Then press **II** to set it to the playback pause mode.
- (4) Press ZERO SET MEMORY on the Remote Commander. The ZERO SET MEMORY indicator flashes and the end point of the insert is stored in memory.
- (5) On your camcorder, locate the insert start point [b] by pressing **◀◀**, then press two **●** REC buttons at same time to set your camcorder to the recording pause mode.
- (6) First press **II** on the VCR, and after a few seconds press **II** on your camcorder to start inserting the new scene.

Inserting automatically stops near the zero point on the tape counter. Your camcorder automatically returns to the recording pause mode.



To change the insert end point

Press ZERO SET MEMORY again after step 5 to erase the ZERO SET MEMORY indicator and begin from step 3.

Notes

- The zero set memory function works only for tapes recorded in the Digital8 **8** system.
- The picture and sound recorded on the section between the insert start and end points will be erased when you insert the new scene.

When the inserted picture is played back

The picture may be distorted at the end of the inserted section. This is not a malfunction.

To insert a scene without setting the insert end point

Skip step 3 and 4. Press **■** when you want to stop inserting.

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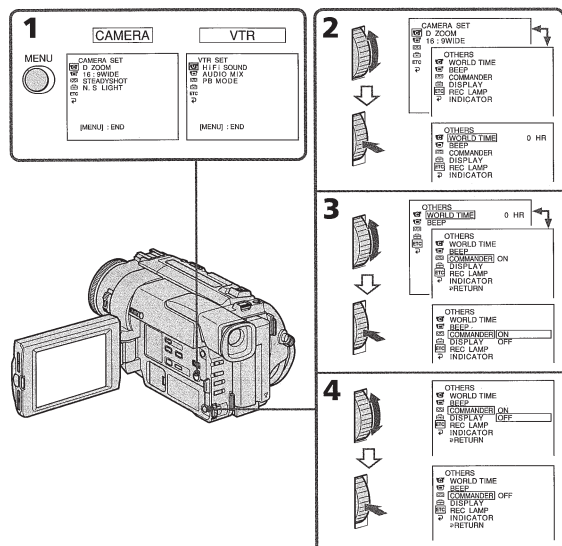
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Customizing Your Camcorder

Changing the MENU settings

To change the mode settings in the MENU settings, select the menu items with the SEL/PUSH EXEC dial. The factory settings can be partially changed. First, select the icon, then the menu item and then the mode.

- (1) In the standby or VTR mode, press MENU.
- (2) Turn the SEL/PUSH EXEC dial to select the desired icon, then press the dial to set.
- (3) Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial to set.
- (4) Turn the SEL/PUSH EXEC dial to select the desired mode, and press the dial to set.
- (5) If you want to change other items, select **↶** RETURN and press the dial, then repeat steps from 2 to 4.



To make the MENU display disappear
Press MENU.

Changing the MENU settings

Note

When you let the subject monitor the shot (Mirror mode), the menu display does not appear.

Menu items are displayed as the following six icons:

- CAMERA SET
- VTR SET
- LCD SET (DCR-TRV203/TRV210/TRV310 only)
- LCD/VF SET (DCR-TRV315 only)
- TAPE SET
- SETUP MENU
- OTHERS

Depending on your camcorder model

The MENU display may be different from that in this illustration.

Selecting the mode setting of each item

Icon/item	Mode	Meaning	POWER switch
D ZOOM	ON	To activate digital zoom. More than 20x to 360x zoom is performed digitally (p. 17)	CAMERA
	● OFF	To prevent the deterioration of the picture quality	
16:9WIDE	● OFF	—	CAMERA
	ON	To record a 16:9 wide picture (p. 29)	
STEADYSHOT	● ON	To compensate for camera-shake	CAMERA
	OFF	To cancel the SteadyShot function. Natural pictures are produced when shooting a stationary object with a tripod.	
N.S. LIGHT	● ON	To use the NightShot Light function (p. 20)	CAMERA
	OFF	To cancel the NightShot Light function	

Notes on the SteadyShot function

- The SteadyShot function will not correct excessive camera-shake.
- Attachment of a conversion lens (not supplied) may influence the SteadyShot function.
- SteadyShot does not operate in the 16:9WIDE mode. If you set STEADYSHOT to ON in the MENU settings, the indicator flashes.

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Changing the MENU settings

Icon/item	Mode	Meaning	POWER switch
	STEREO	To play back a stereo tape or dual sound track tape with main and sub sound	VTR
	1	To play back dual sound track tape with main sound	
	2	To play back a dual sound track tape with sub sound	
AUDIO MIX		To adjust the balance between the stereo 1 and stereo 2	VTR
PB MODE	AUTO	To automatically select the system (Hi8/standard 8 or Digital8) that was used to record on the tape, and play back the tape	VTR
	Hi8/8	To play back a tape that was recorded in the Hi8/standard 8 system when your camcorder does not automatically distinguish the recording system	
	BRT NORMAL	To set the brightness on the LCD screen normal	VTR CAMERA
	BRIGHT	To brighten the LCD screen	
LCD COLOR		To adjust the color on the LCD screen, turn and press the SEL/PUSH EXEC dial	VTR CAMERA
VF B. L. (DCR-TRV315 only)	BRT NORMAL	To set the brightness in the viewfinder normal	VTR CAMERA
	BRIGHT	To brighten the viewfinder	

Notes on AUDIO MIX

- You can adjust the balance only for tapes recorded in the Digital8 system.
- When playing back a tape recorded in the 16-bit mode, you cannot adjust the balance.

Note on PB MODE

- The mode will return to the factory setting when:
- you remove the battery pack or power source.
- you turn the POWER switch.

Notes on LCD B.L. and VF B.L.

- When you select "BRIGHT", battery life is reduced by about 10 percent during recording.
- When you use power sources other than the battery pack, "BRIGHT" is automatically selected.

Changing the MENU settings

Icon/item	Mode	Meaning	POWER switch
	12BIT	To record or play back in the 12-bit mode (two stereo sounds)	VTR* CAMERA
	16BIT	To record or play back in the 16-bit mode (the one stereo sound with high quality)	
	AUTO	To display the remaining tape bar:	VTR CAMERA
		• for about 8 seconds after your camcorder is turned on and calculates the remaining amount of tape • for about 8 seconds after a cassette is inserted and your camcorder calculates the remaining amount of tape • for about 8 seconds after ► is pressed in VTR mode • for about 8 seconds after DISPLAY is pressed to display the screen indicators • for the period of tape rewinding, forwarding or picture search in the VTR mode	
DATA CODE	ON	To always display the remaining tape indicator	
	DATE/CAM	To display date, time and recording data during playback	VTR
CLOCK SET	DATE	To display date and time during playback	
	TIME	To reset the date or time (p. 59)	CAMERA
AUTO TV ON	OFF	—	VTR CAMERA
	ON	To automatically turn on the Sony TV when using the laser link function	
TV INPUT	VIDEO1 VIDEO2 VIDEO3	To switch the video input on a Sony TV when using the laser link function (p. 26)	VTR CAMERA
	OFF	—	
LTR SIZE	NORMAL	To display selected menu items in normal size	VTR CAMERA
	2x	To display selected menu items at twice the normal size	
DEMO MODE	ON	To make the demonstration appear	CAMERA
	OFF	To cancel the demonstration mode	

Note on AUDIO MODE

When playing back a tape recorded in the 16-bit mode, you cannot adjust the balance in AUDIO MIX.

Notes on DEMO MODE

- You cannot select DEMO MODE when a cassette is inserted in your camcorder.
- DEMO MODE is set to STBY (Standby) at the factory and the demonstration starts about 10 minutes after you have set the POWER switch to CAMERA without a cassette inserted.
- Note that you cannot select STBY of DEMO MODE in the MENU settings.
- When NIGHTSHOT is set to ON, the NIGHTSHOT indicator appears in the viewfinder or on the LCD screen and you cannot select DEMO MODE in the MENU settings.

*To dub a tape to another VCR

You cannot select AUDIO MODE for tapes recorded in the Digital8 system. You, however, can select AUDIO MODE when you dub tapes recorded in the Hi8/standard 8 system to another VCR using the i.LINK cable.

Changing the MENU settings

Icon/item	Mode	Meaning	POWER switch
	WORLD TIME	To set the clock to the local time. Turn the SEL/PUSH EXEC dial to set a time difference. The clock changes by the time difference you set here. If you set the time difference to 0, the clock returns to the originally set time.	CAMERA
BEEP	MELODY	To output the melody when you start/stop recording or when an unusual condition occurs on your camcorder	VTR CAMERA
	NORMAL	To output the beep instead of the melody	
	OFF	To cancel the melody and beep sound	
COMMANDER	ON	To activate the Remote Commander supplied with your camcorder	VTR CAMERA
	OFF	To deactivate the Remote Commander to avoid remote control misoperation caused by other VCR's remote control	
DISPLAY	LCD	To show the display on the LCD screen and viewfinder	VTR CAMERA
	V-OUT/LCD	To show the display on the TV screen, LCD screen and viewfinder	
REC LAMP	ON	To light up the camera recording lamp at the front of your camcorder	CAMERA
	OFF	To turn the camera recording lamp off so that the subject is not aware of the recording	
INDICATOR	BL OFF	To turn off the backlight on display window	VTR CAMERA
	BL ON	To turn on the backlight	

In more than 5 minutes after removing the power source

The "COMMANDER" and "HiFi SOUND" items are returned to their factory settings. The other menu items are held in memory even when the battery is removed, as long as the lithium battery is installed.

Note

If you press DISPLAY with "DISPLAY" set to "V-OUT/LCD" in the MENU settings, the picture from a TV or VCR will not appear on the LCD screen even when your camcorder is connected to outputs on the TV or VCR.

Notes on INDICATOR

- When you select "BL ON", battery life is reduced by about 10 percent during recording.
- When you use power sources other than the battery pack, "BL ON" is automatically selected.

Resetting the date and time

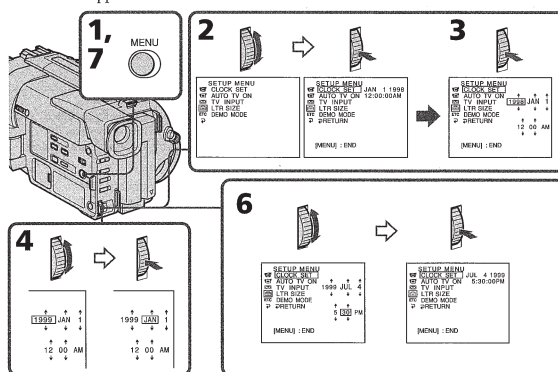
The clock is set to East Coast Standard Time at the factory.

The date and time are held in memory by the lithium battery. If you replace the lithium battery with the battery pack or other power source connected, you need not reset the date and time.

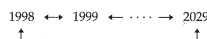
You must reset the date and time when the lithium battery becomes dead with no power source installed.

First, set the year, then the month, the day, the hour and then the minute.

- While the camcorder is in the standby mode, press MENU to display the MENU settings.
- Turn the SEL/PUSH EXEC dial to select , then press the dial.
- Turn the SEL/PUSH EXEC dial to select CLOCK SET, then press the dial.
- Turn the SEL/PUSH EXEC dial to adjust the desired year, then press the dial.
- Set the month, day and hour by turning the SEL/PUSH EXEC dial and pressing the dial.
- Set the minute by turning the SEL/PUSH EXEC dial and pressing the dial by the time signal. The clock starts to move.
- Press MENU to make the MENU settings disappear. The time indicator appears.



The year changes as follows:




Note on the time indicator

- The internal clock of your camcorder operates on a 12-hour cycle.
- 12:00 AM stands for midnight.
- 12:00 PM stands for noon.



Digital8 system, recording and playback

What is the “Digital8 system”?




This video system has been developed to enable digital recording to Hi8 video cassette .

Usable cassette tapes




We recommend using Hi8 video cassettes . The recording time when you use your Digital8  system camcorder on Hi8 /standard 8  tape is half the recording time when using the conventional Hi8 /standard 8  system camcorder. (120 minutes of recording time becomes 60 minutes.)




If you use standard 8  tape, be sure to play back the tape on this camcorder, mosaic pattern noise may appear when you play back standard 8  tape on other VCRs.

Note




Tapes recorded in the Digital8  system cannot be played back on Hi8 /standard 8  (analog) system machine.

Playback system

The Digital8  system or Hi8 /standard 8  system is automatically detected before the tape is played back.*

* During playback of tapes recorded in the Hi8 /standard 8  system, digital signals are output as the image signals from the  DV IN/OUT jack.

Display during automatic detection of system

The Digital8  system or Hi8 /standard 8  system is automatically detected, and the playback system is automatically switched to. During switching of system, the screen turns blue, and the following displays appear. A hissing noise also sometimes can be heard.

 → / : During switching from Digital8  to Hi8 /standard 8 
/  → : During switching from Hi8 /standard 8  to Digital8 

When you play back

Playing back a PAL-recorded tape

You can play back tapes recorded in the PAL video system on the LCD screen, if the tape is recorded in the Digital8  system.

Copyright signal

When you record


You cannot record software on your camcorder that contains copyright control signals for copyright protection of software.

“COPY INHIBIT” appears on the LCD screen, in the viewfinder or on the TV screen if you try to record such software.

Your camcorder does not record copyright control signals on the tape when it records.

Changing the lithium battery in your camcorder

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the MENU settings hold in memory by the lithium battery.

Insert the battery with the positive (+) side facing out. When the battery becomes weak or dead, the  indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 or Duracell DL-2025 lithium battery. Use of any other battery may present a risk of fire or explosion.** Discard used batteries according to the manufacturer’s instructions.



WARNING

The battery may explode if mistreated. Do not recharge, disassemble, nor dispose of it in fire.

Lithium battery

- Keep the lithium battery out of the reach of children.
- Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to ensure good contact.

Lithium battery installed at the factory

This battery may not last 1 year.

Digital8 system, recording and playback

When you playback a dual sound track tape

When you use tapes recorded in the Digital8 system

When you play back a Digital8  system tape which is dubbed from a dual sound track tape recorded in the DV system, set “HiFi SOUND” to the desired mode in the MENU settings (p. 54).

Sound from speaker

HiFi Sound Mode	Playing back a stereo tape	Playing back a dual sound track tape
STEREO	Stereo	Main sound and sub sound
1	Lch	Main sound
2	Rch	Sub sound

When you use tapes recorded in the Hi8/standard 8 system

When you play back a dual sound track tape recorded in an AFM HiFi stereo system, set “HiFi SOUND” to the desired mode in the MENU settings (p. 54).

Sound from speaker

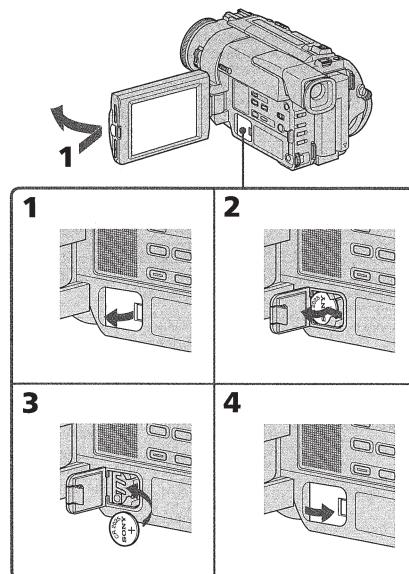
HiFi Sound Mode	Playing back a stereo tape	Playing back a dual sound track tape
STEREO	Stereo	Main sound and sub sound
1	Monaural	Main sound
2	Unnatural Sound	Sub sound

You cannot record dual sound programs on your camcorder.

Changing the lithium battery in your camcorder

Changing the lithium battery

- (1) Open the LCD panel and open the lid of the lithium battery compartment.
- (2) Push the lithium battery down once and pull it out from the holder.
- (3) Install a Sony CR2025 or Duracell DL-2025 lithium battery with the positive (+) side facing out.
- (4) Close the lid.



Troubleshooting

If you run into any problem using your camcorder, use the following table to troubleshoot the problem. If the problem persists, disconnect the power source and contact your Sony dealer or local authorized Sony service facility. If “C:□□:□□” appears on the LCD screen or in the viewfinder, the self-diagnosis display function has worked. See page 68.

In the recording mode

Symptom	Cause and/or Corrective Actions
START/STOP does not operate.	<ul style="list-style-type: none">The POWER switch is set to VTR.<ul style="list-style-type: none">→ Set it to CAMERA. (p. 14)STANDBY is set to LOCK.<ul style="list-style-type: none">→ Turn STANDBY to STANDBY (p. 14)The tape has run out.<ul style="list-style-type: none">→ Rewind the tape or insert a new one. (p. 13, 22)The write-protect tab is set to expose the red mark.<ul style="list-style-type: none">→ Use a new tape or slide the tab. (p. 13)The tape is stuck to the drum (moisture condensation).<ul style="list-style-type: none">→ Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 71)
Recording stops in a few seconds.	<ul style="list-style-type: none">START/STOP MODE is set to 5SEC or .<ul style="list-style-type: none">→ Set it to . (p. 18)
The power goes off.	<ul style="list-style-type: none">While being operated in the CAMERA mode, your camcorder has been in the standby mode for more than 3 minutes.<ul style="list-style-type: none">→ Turn STANDBY down once and then up again. (p. 14)
Your camcorder turns on/off when using the accessory that is attached to the intelligent accessory shoe.	<ul style="list-style-type: none">Your camcorder is working with the AC power adaptor.<ul style="list-style-type: none">→ Use the battery pack.
The image on the viewfinder screen is not clear.	<ul style="list-style-type: none">The viewfinder lens is not adjusted.<ul style="list-style-type: none">→ Adjust the viewfinder lens. (p. 16)
The SteadyShot function does not work.	<ul style="list-style-type: none">STEADYSHOT is set to OFF in the MENU settings.<ul style="list-style-type: none">→ Set it to ON. (p. 54)The SteadyShot function does not work when the wide mode is set to ON.
The autofocus function does not work.	<ul style="list-style-type: none">FOCUS is set to MANUAL.<ul style="list-style-type: none">→ Set it to AUTO. (p. 40)Shooting conditions are not suitable for autofocus.<ul style="list-style-type: none">→ Set FOCUS to MANUAL to focus manually. (p. 40)
The fader function does not work.	<ul style="list-style-type: none">START/STOP MODE is set to 5SEC or .<ul style="list-style-type: none">→ Set it to . (p. 18)The digital effect function is working.<ul style="list-style-type: none">→ Cancel it. (p. 34)
The indicator flashes in the viewfinder.	<ul style="list-style-type: none">The video heads may be dirty.<ul style="list-style-type: none">→ Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 72)
The picture does not appear in the viewfinder.	<ul style="list-style-type: none">The LCD panel is open.<ul style="list-style-type: none">→ Close the LCD panel. (p. 15)

Troubleshooting

Symptom	Cause and/or Corrective Actions
A vertical band appears when you shoot a subject such as lights or a candle flame against a dark background.	<ul style="list-style-type: none">The contrast between the subject and background is too high. Your camcorder is not a malfunction.
A vertical band appears when you shoot a very bright subject.	<ul style="list-style-type: none">Your camcorder is not a malfunction.
Some tiny white spots appear in the viewfinder or on the LCD screen.	<ul style="list-style-type: none">Slow shutter, low lux or NightShot +Slow shutter mode is activated. This is not a malfunction.
An unknown picture is displayed in the viewfinder or on the LCD screen.	<ul style="list-style-type: none">If 10 minutes elapse after you set the POWER switch to CAMERA or DEMO MODE is set to ON in the MENU settings without a cassette inserted, your camcorder automatically starts the demonstration.<ul style="list-style-type: none">→ Insert a cassette and the demonstration stops. You can also cancel DEMO MODE. (p. 54)
The picture is recorded in incorrect or unnatural colors.	<ul style="list-style-type: none">NIGHTSHOT is set to ON.<ul style="list-style-type: none">→ Set it to OFF. (p. 19)
Picture appears too bright, and the subject does not appear in the viewfinder or on the LCD screen.	<ul style="list-style-type: none">NIGHTSHOT is set to ON in a bright place.<ul style="list-style-type: none">→ Set it to OFF, or use the NightShot function in a dark place. (p. 19)

In the playback mode

Symptom	Cause and/or Corrective Actions
The tape does not move when a video control button is pressed.	<ul style="list-style-type: none">The POWER switch is set to CAMERA or OFF.<ul style="list-style-type: none">→ Set it to VTR. (p. 22)The tape has run out.<ul style="list-style-type: none">→ Rewind the tape. (p. 22)
The playback picture is not clear or does not appear.	<ul style="list-style-type: none">The television's video channel is not adjusted correctly.<ul style="list-style-type: none">→ Adjust it. (p. 25)
There are four horizontal lines on the picture or the playback picture is not clear or does not appear.	<ul style="list-style-type: none">The video head may be dirty.<ul style="list-style-type: none">→ Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 72)
No sound or only a low sound is heard when playing back a tape.	<ul style="list-style-type: none">The stereo tape is played back with HIFI SOUND set to 2 in the MENU settings.<ul style="list-style-type: none">→ Set it to STEREO. (p. 54)The volume is turned to minimum.<ul style="list-style-type: none">→ Open the LCD panel and press VOLUME +. (p. 22)AUDID MIX is set to ST2 side in the MENU settings.<ul style="list-style-type: none">→ Adjust AUDIO MIX. (p. 54)
The date search does not work correctly.	<ul style="list-style-type: none">The tape has a blank portion in the recorded portion (p. 46)
The pictur which is recorded in the Digital8 system is not played back.	<ul style="list-style-type: none">PB MODE is set to H1B/I in the MENU settings.<ul style="list-style-type: none">→ Set it to AUTO. (p. 54)
The date which is recorded in the Hi8/standard 8 system is not played back correctly.	<ul style="list-style-type: none">Set PB MODE to H1B/I in the MENU settings. (p. 54)

(Continued on the following page)

Additional Information

Troubleshooting

In the recording and playback modes

Symptom	Cause and/or Corrective Actions
The power does not turn on.	<ul style="list-style-type: none">The battery pack is not installed, or is dead or nearly dead.<ul style="list-style-type: none">→ Install a charged battery pack. (p. 8, 9)The AC power adaptor is not connected to a wall outlet.<ul style="list-style-type: none">→ Connect the AC power adaptor to a wall outlet. (p. 12)
The end search function does not work.	<ul style="list-style-type: none">The tape was ejected after recording.<ul style="list-style-type: none">→ You have not recorded on the new cassette yet.
The battery pack is quickly discharged.	<ul style="list-style-type: none">The operating temperature is too low.The battery pack is not fully charged.<ul style="list-style-type: none">→ Charge the battery pack again. (p. 9)The battery pack is completely dead, and cannot be recharged.<ul style="list-style-type: none">→ Replace with a new battery pack. (p. 8)
The battery remaining indicator does not indicate the correct time.	<ul style="list-style-type: none">You have used the battery pack in an extremely hot or cold environment for a long time.The battery pack is completely dead, and cannot be recharged.<ul style="list-style-type: none">→ Replace with a new battery pack. (p. 8)The battery is dead.<ul style="list-style-type: none">→ Use a charged battery pack. (p. 8, 9)
The cassette cannot be removed from the holder.	<ul style="list-style-type: none">The power source is disconnected.<ul style="list-style-type: none">→ Connect it firmly. (p. 8, 12)The battery is dead.<ul style="list-style-type: none">→ Use a charged battery pack or the AC power adaptor. (p. 8, 9)
The and indicators flash and no functions except for cassette ejection work.	<ul style="list-style-type: none">Moisture condensation has occurred.<ul style="list-style-type: none">→ Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 71)

Troubleshooting

Others

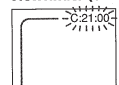
Symptom	Cause and/or Corrective Actions
The Remote Commander supplied with your camcorder does not work.	<ul style="list-style-type: none">COMMANDER is set to OFF in the MENU settings.<ul style="list-style-type: none">→ Set it to ON. (p. 54)Something is blocking the infrared rays.<ul style="list-style-type: none">→ Remove the obstacle.The batteries are inserted in the battery holder with the + - polarities incorrectly matching the + - marks.<ul style="list-style-type: none">→ Insert the batteries with the correct polarity. (p. 81)The batteries are dead.<ul style="list-style-type: none">→ Insert new ones. (p. 81)
The picture from a TV or VCR does not appear even when your camcorder is connected to outputs on the TV or VCR.	<ul style="list-style-type: none">DISPLAY is set to V-OUT/LCD in the MENU settings.<ul style="list-style-type: none">→ Set it to LCD. (p. 54)
The melody or beep sounds for 5 seconds.	<ul style="list-style-type: none">Moisture condensation has occurred.<ul style="list-style-type: none">→ Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 71)Some troubles has occurred in your camcorder.<ul style="list-style-type: none">→ Remove the cassette and insert it again, then operate your camcorder.
While charging the battery pack, no indicator appears or the indicator flashes in the display window.	<ul style="list-style-type: none">The AC power adaptor is disconnected.<ul style="list-style-type: none">→ Connect it firmly. (p. 9)Something is wrong with the battery pack.<ul style="list-style-type: none">→ Contact your Sony dealer or local authorized Sony service facility.

Additional Information

Self-diagnosis display

Your camcorder has a self-diagnosis display function. This function displays the current condition of your camcorder as a 5-digit code (a combination of a letter and figures) in the viewfinder, on the LCD screen or in the display window. If a 5-digit code is displayed, check the following code chart. The last two digits (indicated by □□) will differ depending on the state of your camcorder.

Viewfinder (or LCD screen)



Self-diagnosis display

- C□□□□ You can service your camcorder yourself.
- E□□□□ Contact your Sony dealer or local authorized Sony facility.

Five-digit display	Cause and/or Corrective Actions
C:04:□□	<ul style="list-style-type: none"> • You are using a battery pack that is not an "InfoLITHIUM" battery pack. → Use an "InfoLITHIUM" battery pack. (p. 11)
C:21:□□	<ul style="list-style-type: none"> • Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 71)
C:22:□□	<ul style="list-style-type: none"> • The video heads are dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 72)
C:31:□□	<ul style="list-style-type: none"> • A malfunction other than the above that you can service has occurred. → Remove the cassette and insert it again, then operate your camcorder. → Disconnect the power cord of the AC power adaptor or remove the battery pack. After reconnecting the power source, operate your camcorder.
C:32:□□	
E:61:□□	<ul style="list-style-type: none"> • A malfunction that you cannot service has occurred. → Contact your Sony dealer or local authorized Sony service facility and inform them of the 5-digit code. (example: E:61:10)
E:62:□□	

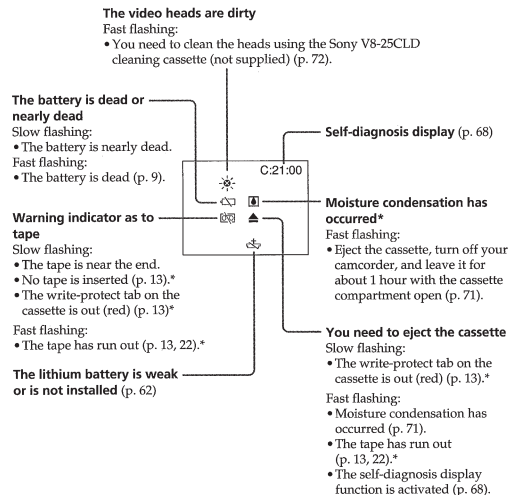
If you are unable to rectify the problem even if you try corrective actions a few times, contact your Sony dealer or local authorized Sony service facility.

Warning indicators and messages

If indicators and messages appear in the viewfinder, on the LCD screen or in the display window, check the following: See the page in parentheses "()" for more information.

- The warning messages do not appear in the mirror mode.
- The indicators and messages are displayed in yellow.

Warning indicators



Warning messages

- CLEANING CASSETTE** The video heads are dirty.
- COPY INHIBIT** You tried to record a picture that has a copyright control signal (p. 60).

* You hear the melody or beep sound.

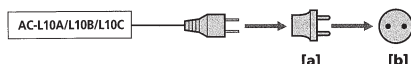
68

69

Using your camcorder abroad

Using your camcorder abroad

You can use your camcorder in any country or area with the AC power adaptor supplied with your camcorder within 100 V to 240 V AC, 50/60 Hz. When charging the battery pack, use a commercially available AC plug adaptor [a], if necessary, depending on the design of the wall outlet [b].



Your camcorder is an NTSC system based camcorder. If you want to view the playback picture on a TV, it must be an NTSC system based TV with VIDEO/AUDIO input jack. The following shows TV color systems used overseas.

NTSC system

Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

PAL system

Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system

Brazil

PAL-N system

Argentina, Paraguay, Uruguay

SECAM system

Bulgaria, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Ukraine, etc.

Simple setting of clock by time difference

You can easily set the clock to the local time by setting a time difference. Select WORLD TIME in the MENU settings. See page 54 for more information.

Maintenance information and precautions

Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or your camcorder may not operate correctly. If there is moisture inside your camcorder, the beep sounds and the [a] indicator flashes. When the [b] indicator flashes at the same time, the cassette is inserted in your camcorder. If moisture condenses on the lens, the indicator will not appear.

If moisture condensation occurred

None of the functions except cassette ejection will work. Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open. Your camcorder can be used again if the [a] indicator does not appear when the power is turned on again.

Note on moisture condensation

Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a hot place as follows:

- You bring your camcorder from a ski slope into a place warmed up by a heating device
- You bring your camcorder from an air-conditioned car or room into a hot place outside
- You use your camcorder after a squall or a shower
- You use your camcorder in a high temperature and humidity place

How to prevent moisture condensation



When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and tightly seal it. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about 1 hour).

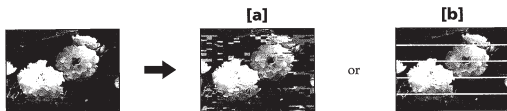
Maintenance information and precautions

Maintenance information

Cleaning the video head

To ensure normal recording and clear pictures, clean the video heads. The video head may be dirty when:

- mosaic-pattern noise appears on the playback picture.
- playback pictures do not move.
- playback pictures are hardly visible.
- playback pictures do not appear.
- the  indicator and "CLEANING CASSETTE" message appear one after another or the  indicator flashes on the LCD screen or in the viewfinder.



If the above problem, [a] or [b] occurs, clean the video heads with the Sony V8-25CLD cleaning cassette (not supplied). Check the picture and if the above problem persists, repeat cleaning.

Cleaning the LCD screen

If fingerprints or dust make the LCD screen dirty, we recommend using a LCD Cleaning Kit (not supplied) to clean the LCD screen.

Removing dust from inside the viewfinder — DCR-TRV203/TRV210/TRV310

- (1) Remove the screw with a screwdriver (not supplied). (2) Then, while sliding the RELEASE knob, (3) turn the eyecup in the direction of the arrow and pull it out.
- (2) Clean the surface with a commercially available blower for a still camera.
- (3) Reattach the eyecup and replace the screw.



Caution

Do not remove any other screws. You may remove only the screw to remove the eyecup.

Maintenance information and precautions

Precautions

Camcorder operation

- Operate your camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this operating instructions.
- If any solid object or liquid get inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- Keep your camcorder away from strong magnetic fields or mechanical vibration.
- Do not touch the LCD screen with your fingers or a sharp-pointed object.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

On handling tapes

Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape and if the recording tab is in or out.

Camcorder care

- Remove the tape, and periodically turn on the power, operate the CAMERA and VTR sections and play back a tape for about 3 minutes when your camcorder is not to be used for a long time.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.
- Do not let sand get into your camcorder. When you use your camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause your camcorder to malfunction, and sometimes this malfunction cannot be repaired.

Additional Information

Maintenance information and precautions

AC power adaptor

- Unplug the unit from the wall outlet when you are not using the unit for a long time. To disconnect the power cord, pull it out by the plug. Never pull the power cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the power cord forcibly, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.
- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
 - Extremely hot or cold
 - Dusty or dirty
 - Very humid
 - Vibrating

Notes on dry batteries

To avoid possible damage from battery leakage or corrosion, observe the following:

- Be sure to insert the batteries with the + – polarities matched to the + – marks.
- Dry batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- Current flows from batteries when you are not using them for a long time.
- Do not use leaking batteries.

If batteries are leaking

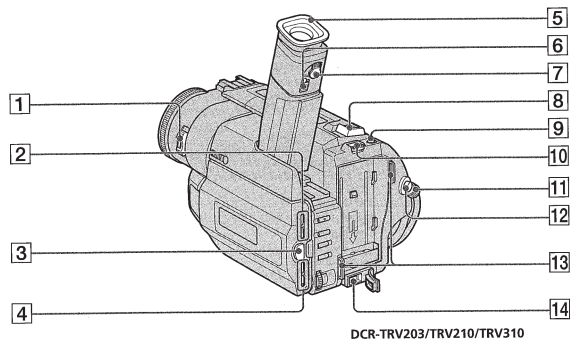
- Wipe off the liquid in the battery compartment carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

If any problem occurs, unplug your camcorder and contact your nearest Sony dealer.

— Quick Reference —

Identifying the parts and controls

Camcorder

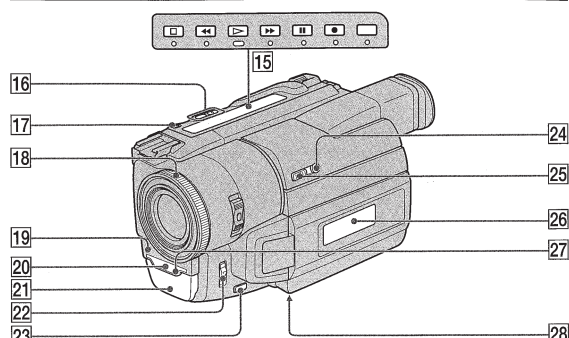


- | | |
|---|------------------------------------|
| 1 POWER switch (p. 14) | 8 Power zoom lever (p. 17) |
| 2 LCD BRIGHT buttons (p. 15) | 9 PHOTO button (p. 27) |
| 3 OPEN button (p. 14) | 10 BATT RELEASE lever (p. 8) |
| 4 VOLUME buttons (p. 22) | 11 STANDBY switch (p. 14) |
| 5 Eyecup (p. 72) | 12 START/STOP button (p. 14) |
| 6 Eyecup RELEASE knob (DCR-TRV203/TRV210/TRV310 only) (p. 72) | 13 Hook for shoulder strap (p. 78) |
| 7 Viewfinder lens adjustment lever (p. 16) | 14 DC IN jack (p. 9) |



This mark indicates that this product is a genuine accessory for Sony video products. When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

Identifying the parts and controls



15 Video control buttons

- (p. 22, 24, 44, 51, 53)
- STOP (stop)
 - ◀ REW (rewind)
 - ▶ PLAY (playback)
 - ▶▶ FF (fastforward)
 - ⏸ PAUSE (pause)
 - REC (recording)
- The control buttons light up when you set the POWER switch to VTR.

16 EDITSEARCH buttons

(p. 21)

17 LASER LINK button

(p. 26)

18 Focus ring

(p. 40)

19 Camera recording lamp

(p. 14)

20 Infrared rays emitter

(p. 19, 26)

21 Microphone

(p. 40)

22 FOCUS switch

(p. 40)

23 PUSH AUTO button

(p. 20)

24 +SLOW SHUTTER button

(p. 20)

25 NIGHTSHOT switch

(p. 19)

26 Display window

(p. 82)

27 Remote sensor


(p. 81)

28 Tripod receptacle (base)

Make sure that the length of the tripod screw is less than 9/32 inch (6.5 mm). Otherwise, you cannot attach the tripod securely and the screw may damage your camcorder.

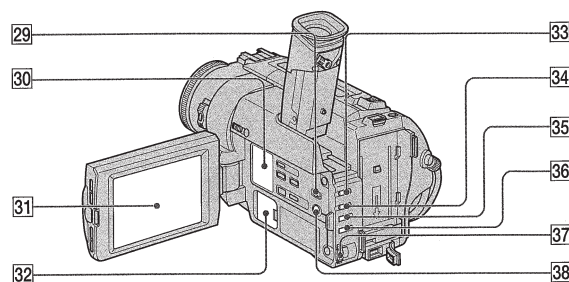
Quick Reference

What is LASER LINK?

The LASER LINK system sends and receives pictures and sound between video equipment having the  mark by using infrared rays.

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Identifying the parts and controls



29 START/STOP MODE switch

(p. 18)

30 Speaker

(p. 15)

31 LCD screen

(p. 63)

32 Lithium battery compartment

(p. 31)

33 FADER button

(p. 19)

34 BACK LIGHT button

(p. 38)

35 PROGRAM AE button

(p. 39)

36 EXPOSURE button

(p. 33)

37 SEL/PUSH EXEC dial

(p. 29, 54)

38 MENU button

(p. 29, 54)

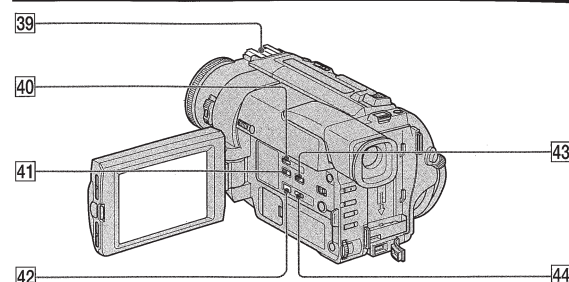
Attaching the shoulder strap

Attach the shoulder strap supplied with your camcorder to the hooks for the shoulder strap.



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Identifying the parts and controls



39 Intelligent accessory shoe

(p. 23)

40 DATA CODE button

(p. 23)

41 DISPLAY button

(p. 23)

42 DIGITAL EFFECT button

(p. 35, 43)

43 END SEARCH button

(p. 21)

44 PICTURE EFFECT button

(p. 33, 42)

Quick Reference

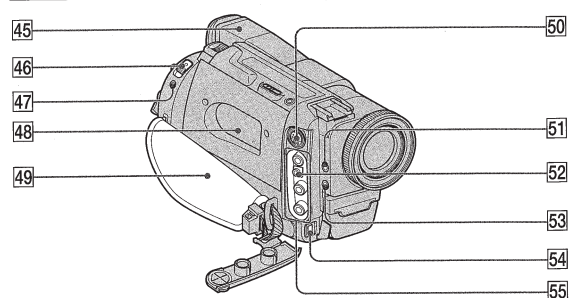
Intelligent Accessory Shoe

Notes on the intelligent accessory shoe

- The intelligent accessory shoe supplies power to optional accessories such as a video light or microphone.
- The intelligent accessory shoe is linked to STANDBY, allowing you to turn the power supplied by the shoe on and off. Refer to the operating instructions of the accessory for further information.
- The intelligent accessory shoe has a safety device for fixing the installed accessory securely. To connect an accessory, press down and push it to the end, and then tighten the screw.
- To remove an accessory, loosen the screw, and then press down and pull out the accessory.

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Identifying the parts and controls




45 Viewfinder

(p. 16)

46 EJECT switch

(p. 13)

47 LANC control jack

LANC stands for Local Application Control Bus System. The  control jack is used for controlling the tape transport of video equipment and other peripherals connected to the video equipment. This jack has the same function as the jack indicated as CONTROL L or REMOTE.

48 Cassette compartment

(p. 13)

49 Grip strap

(p. 25, 28, 49, 51)

50 S VIDEO jack

(p. 25, 28, 49, 51)

51 (headphones) jack

When you use headphones, the speaker on your camcorder is silent.

52 RFU DC OUT (RFU adaptor DC output) jack


(p. 25)

53 MIC jack (PLUG IN POWER)

Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone. If you connect a 2-pin microphone, supply power from DC OUT jack.

54 iDV IN/OUT jack

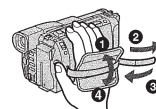
This "i.LINK" mark is a trademark of Sony Corporation and indicates that this product is in agreement with IEEE 1394-1995 specifications and their revisions.

The  DV IN/OUT jack is i.LINK compatible.

55 VIDEO/AUDIO jacks

(p. 25, 28, 49, 51)

Fastening the grip strap



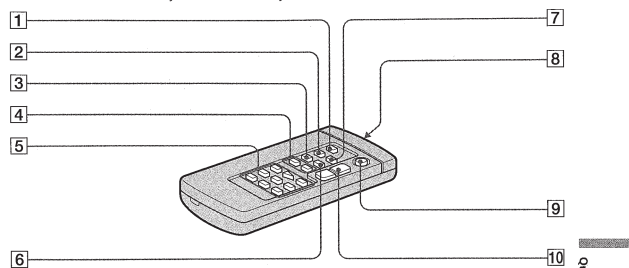
Fasten the grip strap firmly.

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Identifying the parts and controls

Remote Commander

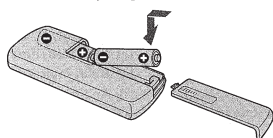
The buttons that have the same name on the Remote Commander as on your camcorder function identically to the buttons on your camcorder.



- | | |
|--------------------------------------|---|
| 1 PHOTO button (p. 27) | 7 ZERO SET MEMORY button (p. 41, 44, 53) |
| 2 DISPLAY button (p. 23) | 8 Transmitter |
| 3 SEARCH MODE button (p. 45, 47, 48) | Point toward the remote sensor to control the camcorder after turning on the camcorder. |
| 4 < > buttons (p. 45, 47, 48) | 9 START/STOP button (p. 14) |
| 5 Tape transport buttons (p. 24) | 10 Power zoom button (p. 17) |
| 6 DATA CODE button (p. 23) | |

To prepare the Remote Commander

Insert 2 size AA (R6) batteries by matching the + and - polarities on the batteries to the + - marks inside the battery compartment.



Notes on the Remote Commander

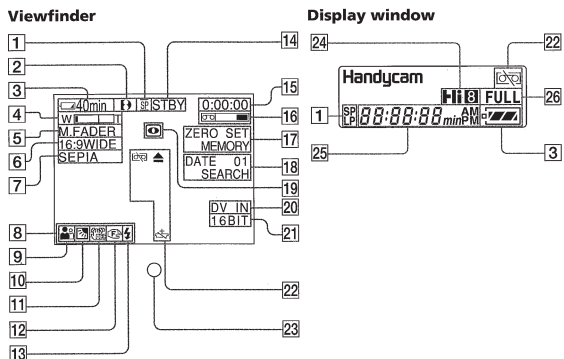
- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in the Commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

Quick Reference

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Identifying the parts and controls

Operation indicators



- | | |
|---|---|
| 1 Tape speed mode indicator
This indicator appears while playing back in the Hi8/standard 8 system. | 14 Standby/Recording indicator (p. 14)/Video control mode (p. 24) |
| 2 Format indicator (p. 60)
i, Hi8 or 8 indicator appears. | 15 Tape counter (p. 18, 41, 44, 53)/Time code indicator (p. 18)/Self-diagnosis display function indicator (p. 68)/SSEC mode indicator (p. 18)/Photo recording indicator (p. 27) |
| 3 Remaining battery time indicator (p. 18) | 16 Remaining tape indicator (p. 18) |
| 4 Exposure indicator (p. 39)/Zoom indicator (p. 17) | 17 ZERO SET MEMORY indicator (p. 41, 44, 53) |
| 5 Fader indicator (p. 31)/Digital effect indicator (p. 35, 43) | 18 Search mode indicator (p. 21, 45, 47, 48) |
| 6 Wide mode indicator (p. 29) | 19 NIGHTSHOT indicator (p. 19, 20) |
| 7 Picture effect indicator (p. 33) | 20 DV IN indicator (p. 50) |
| 8 LCD bright indicator (p. 15)/Volume indicator (p. 22)/Data code indicator (p. 23) | 21 Audio mode indicator (p. 57) |
| 9 PROGRAM AE indicator (p. 38) | 22 Warning indicators (p. 69) |
| 10 Backlight indicator (p. 19) | 23 Recording lamp (DCR-TRV203/TRV210/TRV310 only) (p. 14) |
| 11 SteadyShot off indicator (p. 55) | 24 Hi8 indicator
This indicator appears while playing back in the Hi8 system. |
| 12 Manual focusing indicator (p. 40) | 25 Tape counter (p. 41, 44, 53)/Time code indicator (p. 18)/Self-diagnosis display function indicator (p. 68)/Remaining battery time indicator (p. 9) |
| 13 Video flash ready indicator
This indicator appears when you use the video flash light (not supplied). | 26 FULL charge indicator (p. 9) |

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Quick Function Guide

Functions to adjust exposure (in the recording mode)

- | | |
|---|----------------------------|
| • In a dark place | NIGHTSHOT (p. 19) |
| • In insufficient light | Low lux mode (p. 37) |
| • In dark environments such as sunset, fireworks, or general night views | Sunset & moon mode (p. 37) |
| • Shooting backlit subjects | BACK LIGHT (p. 19) |
| • In spotlight, such as at the theater or a formal event | Spotlight mode (p. 37) |
| • In strong light or reflected light, such as at a beach in midsummer or on a ski slope | Beach & ski mode (p. 37) |

Functions to give images more impact (in the recording mode)

- | | |
|--|----------------------------|
| • Smooth transition between scenes | FADER (p. 31) |
| • Taking a still picture | PHOTO (p. 27) |
| • Digital processing of images | PICTURE EFFECT (p. 33) |
| • Processing a scene using digital effects | DIGITAL EFFECT (p. 35) |
| • Creating a soft background for subjects | Soft portrait mode (p. 37) |

Functions to give a natural appearance to your recordings (in the recording mode)

- | | |
|---|----------------------------|
| • Preventing deterioration of picture quality in digital zoom | D ZOOM [MENU] (p. 54) |
| • Focusing manually | Manual focus (p. 40) |
| • Shooting distant subjects | Landscape mode (p. 37) |
| • Recording fast-moving subjects | Sports lesson mode (p. 37) |

Functions to use in editing (in the recording mode)

- | | |
|--|-------------------|
| • Watching the picture on a wide-screen TV | Wide mode (p. 29) |
|--|-------------------|

Functions to use after recording (in the playback mode)

- | | |
|--|---------------------------------|
| • Digital processing of recorded images | PICTURE EFFECT (p. 42) |
| • Processing a recorded scene using digital effects | DIGITAL EFFECT (p. 43) |
| • Displaying the date/time or recording data when you recorded | Data code (p. 23) |
| • Quickly locating a desired scene | Zero set memory (p. 41, 44, 53) |
| • Searching for scenes recorded in the photo mode | Photo search (p. 47) |
| • Scanning scenes recorded in the photo mode | Photo scan (p. 48) |
| • Playing back on monaural sound or sub sound | HiFi SOUND [MENU] (p. 54) |
| • Playing back the picture on a TV without connecting a cord | LASER LINK (p. 26) |

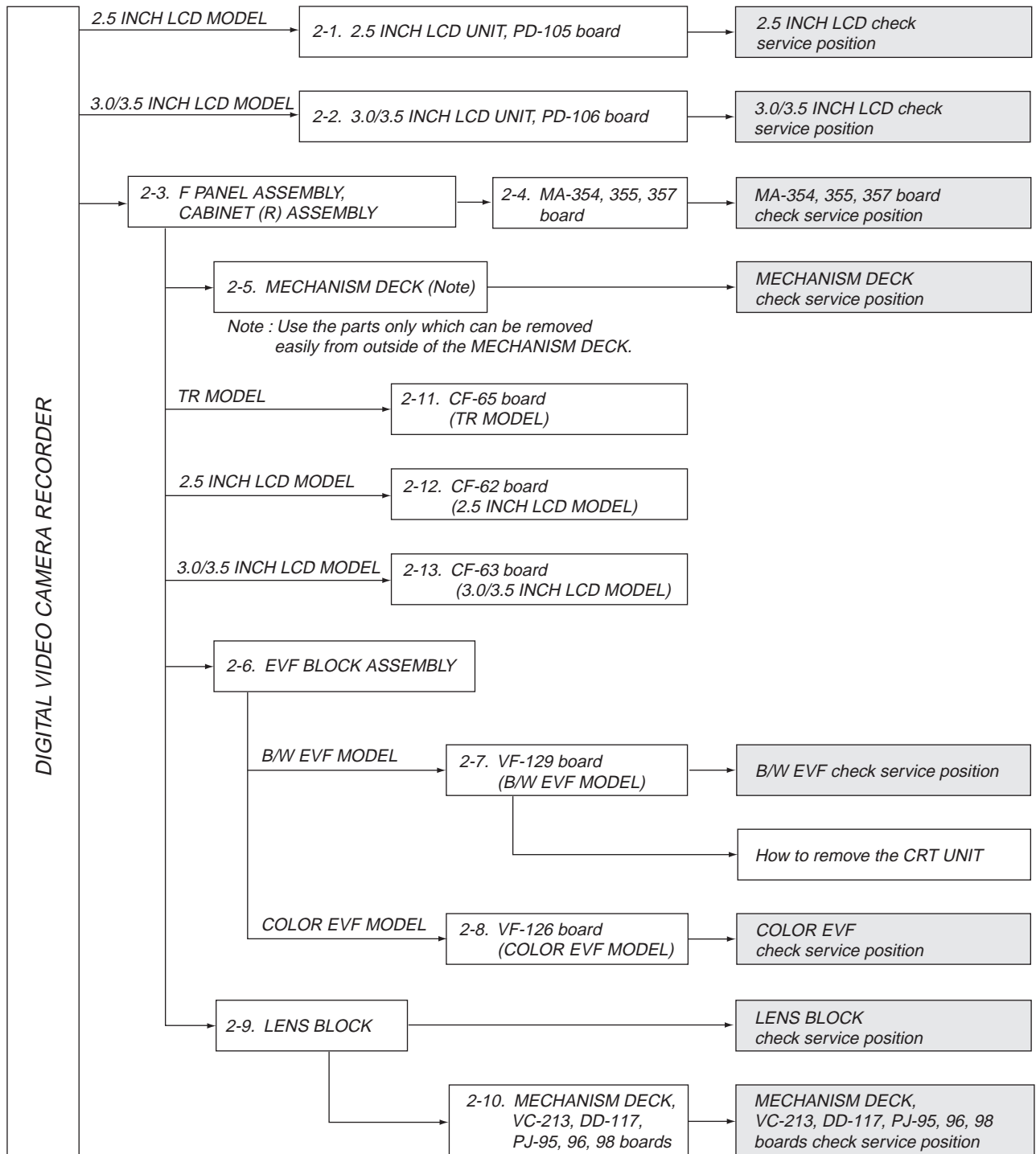
Quick Reference

83

DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/ TRV210E/TRV310/TRV310E/TRV310P/TRV315 DCR-TR7000/TR7000E/TR7100E

SECTION 2 DISASSEMBLY

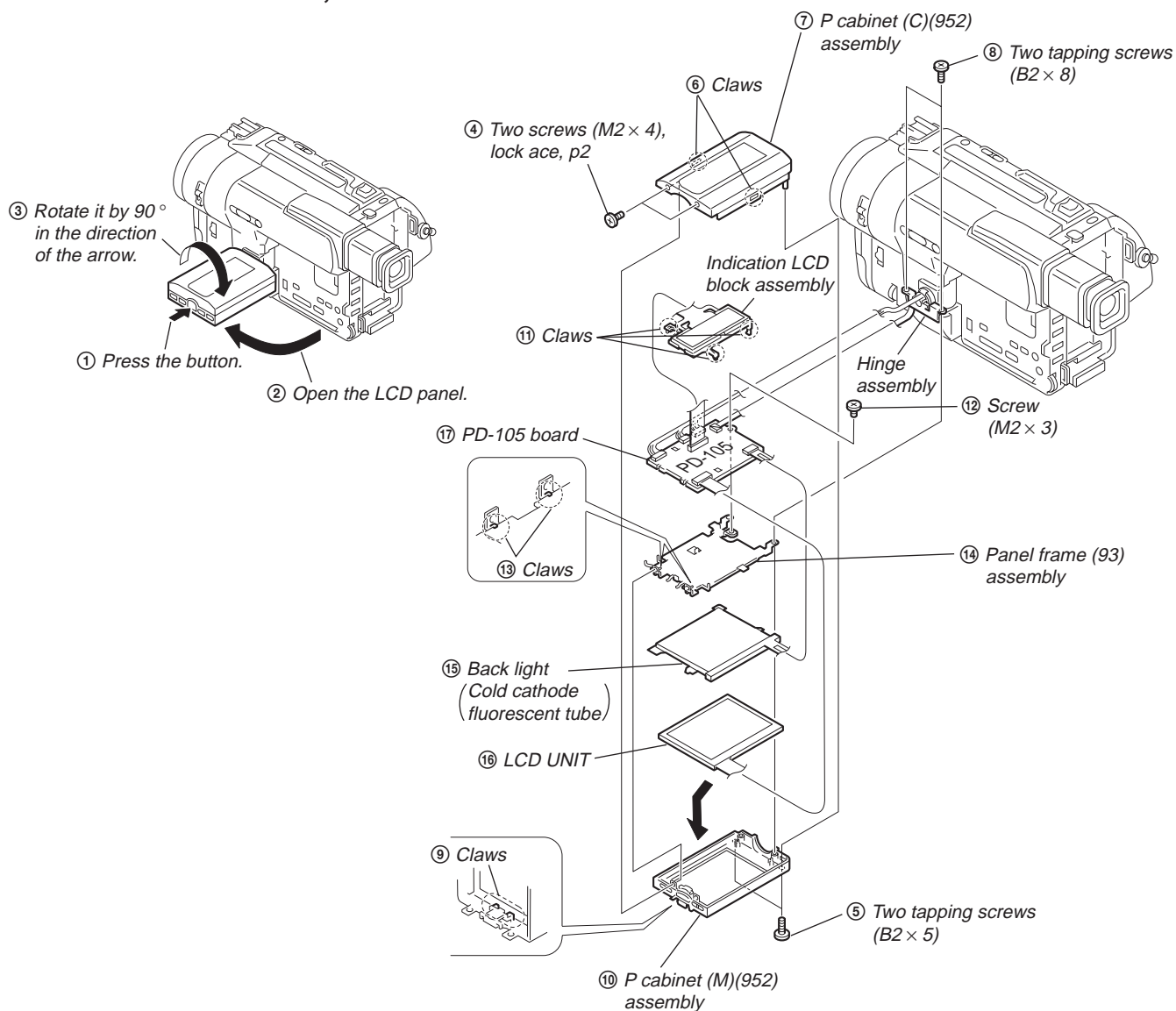
The following flow chart shows the disassembly procedure.



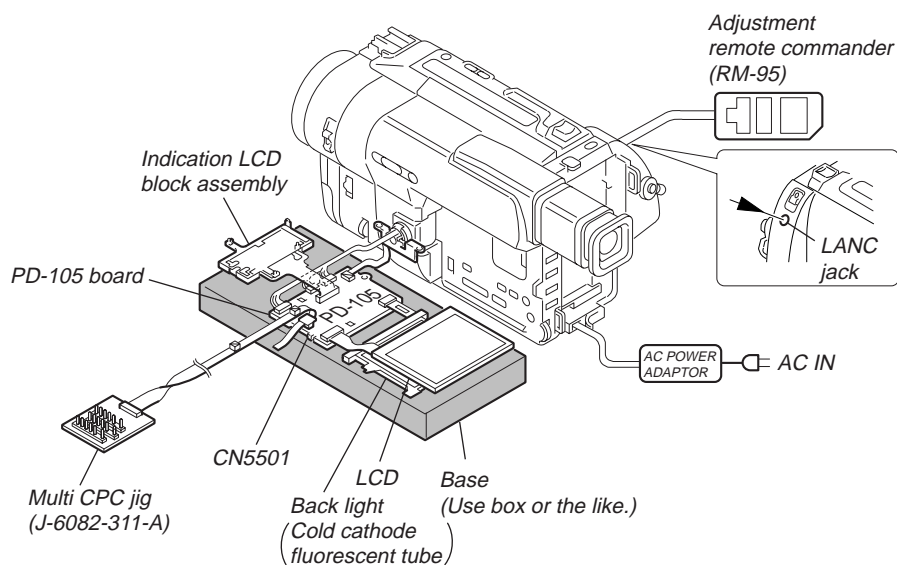
TR MODEL	: DCR-TR7000/TR7000E/TR7100E
2.5 INCH LCD MODEL	: DCR-TRV103/TRV110/TRV110E/TRV110P
3.0 INCH LCD MODEL	: DCR-TRV203/TRV210/TRV210E/TRV315
3.5 INCH LCD MODEL	: DCR-TRV310/TRV310E/TRV310P
B/W EVF MODEL	: DCR-TRV103/TRV110/TRV110E/TRV110P : DCR-TRV203/TRV210/TRV210E : DCR-TRV310/TRV310E/TRV310P
COLOR EVF MODEL	: DCR-TR7000/TR7000E/TR7100E : DCR-TRV315
NTSC MODEL	: DCR-TRV103/TRV110/TRV110P/TRV203/TRV210/TRV310/TRV310P/TRV315/TR7000
PAL MODEL	: DCR-TRV110E/TRV210E/TRV310E/TR7000E/TR7100E

NOTE: Follow the disassembly procedure in the numerical order given.

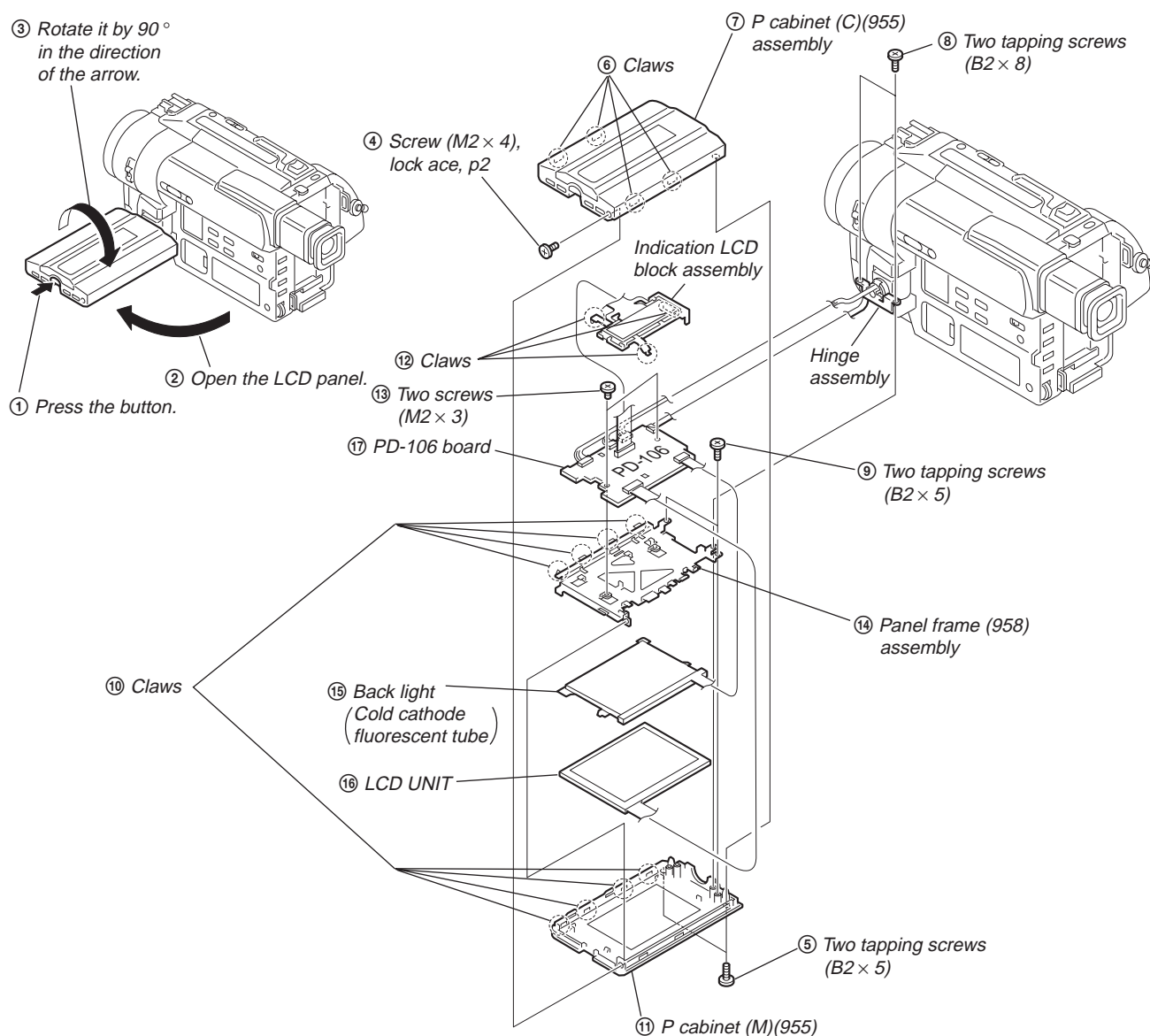
2-1. 2.5 INCH LCD UNIT, PD-105 BOARD



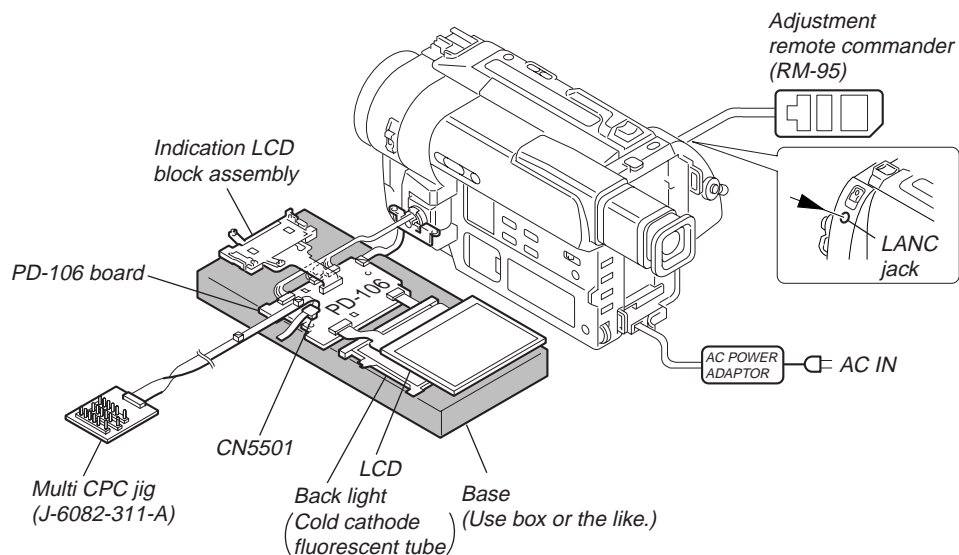
[2.5 INCH LCD CHECK SERVICE POSITION]



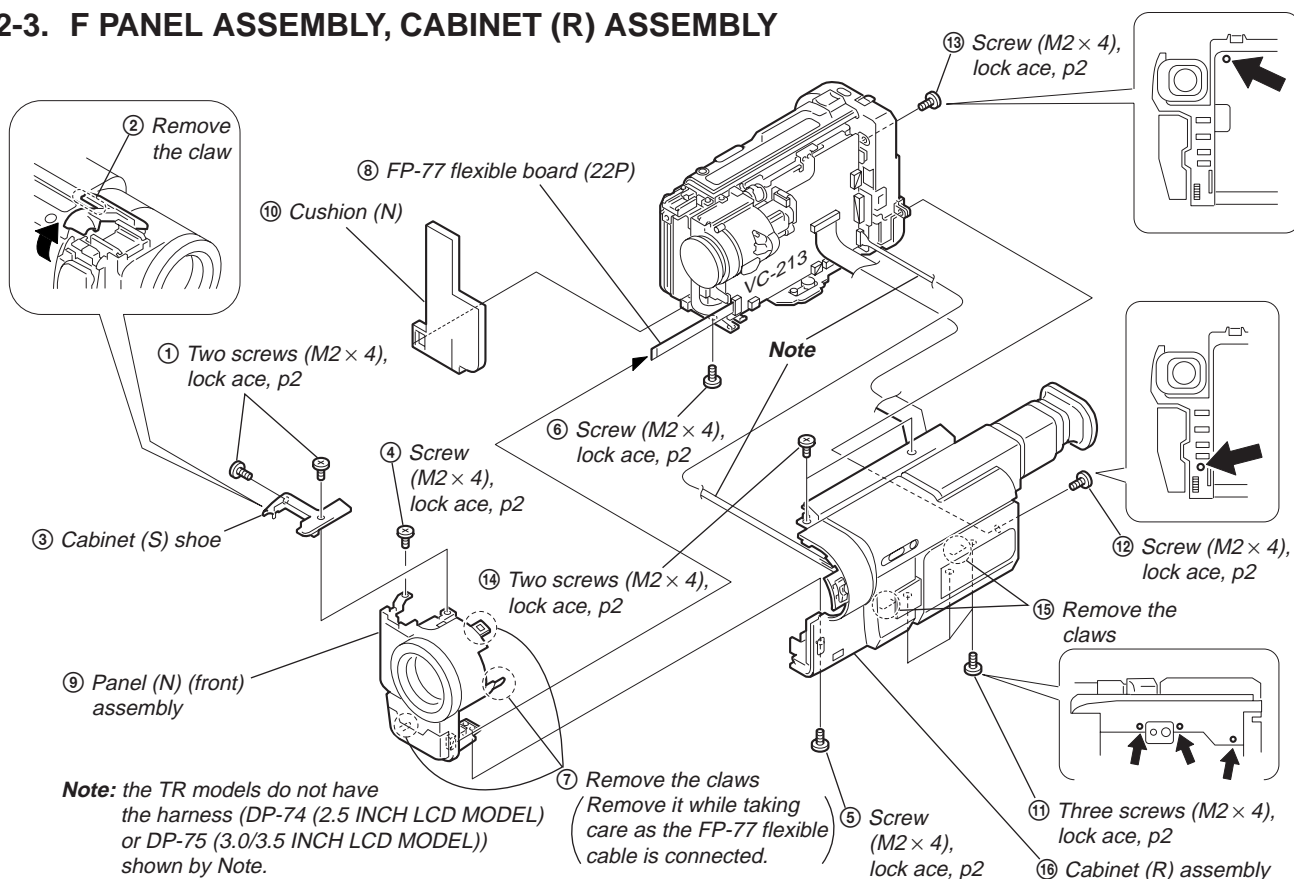
2-2. 3.0/3.5 INCH LCD UNIT, PD-106 BOARD



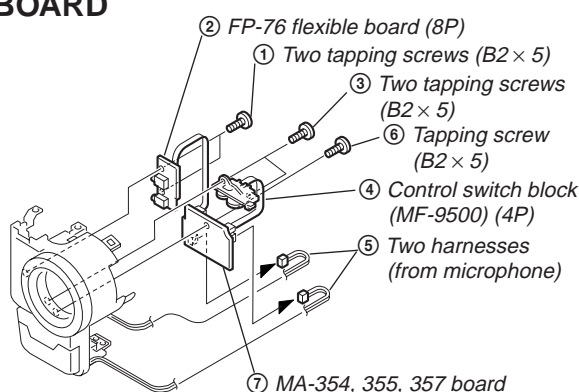
[3.0/3.5 INCH LCD CHECK SERVICE POSITION]



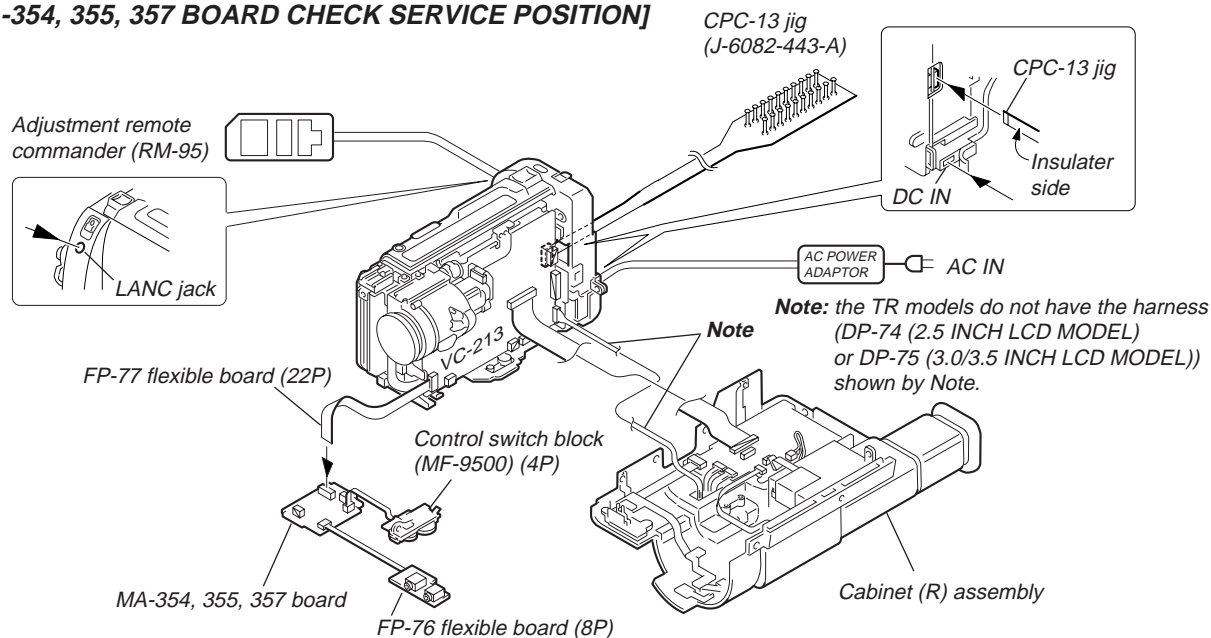
2-3. F PANEL ASSEMBLY, CABINET (R) ASSEMBLY



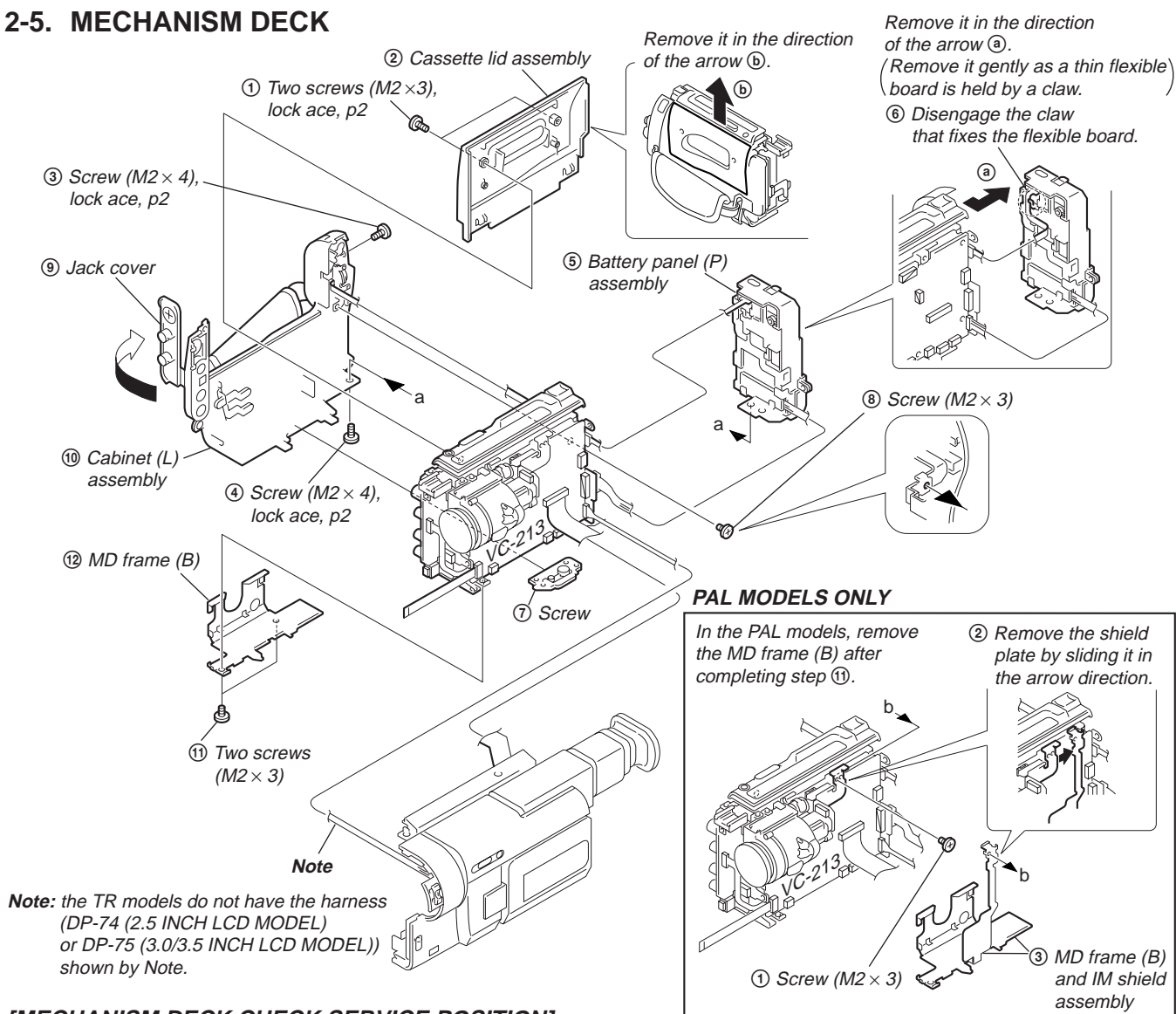
2-4. MA-354, 355, 357 BOARD



[MA-354, 355, 357 BOARD CHECK SERVICE POSITION]



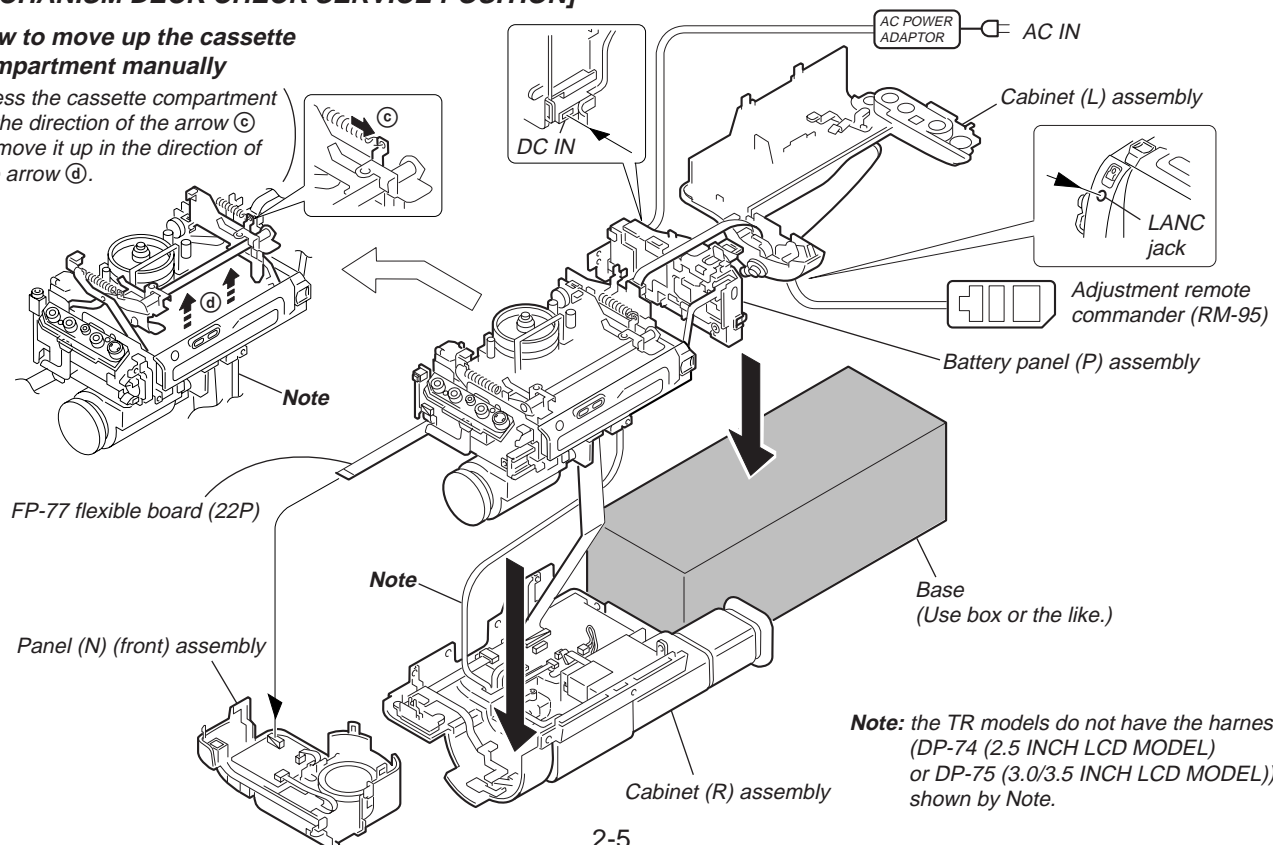
2-5. MECHANISM DECK



[MECHANISM DECK CHECK SERVICE POSITION]

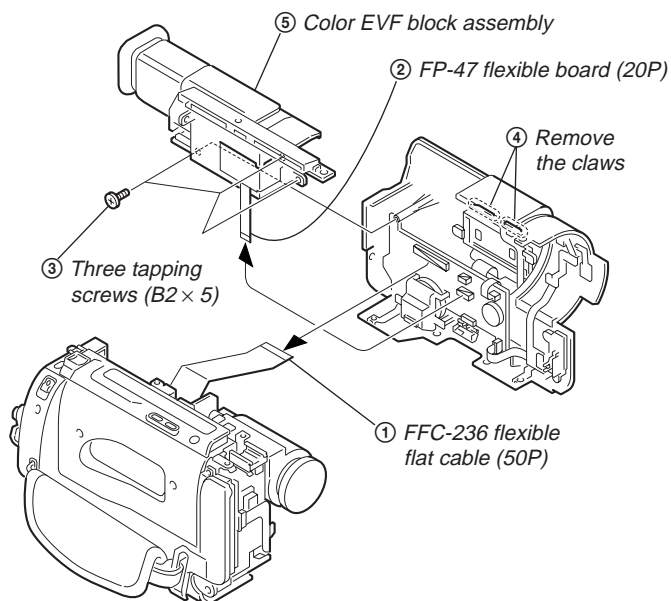
• How to move up the cassette compartment manually

(Press the cassette compartment in the direction of the arrow (c) to move it up in the direction of the arrow (d).)

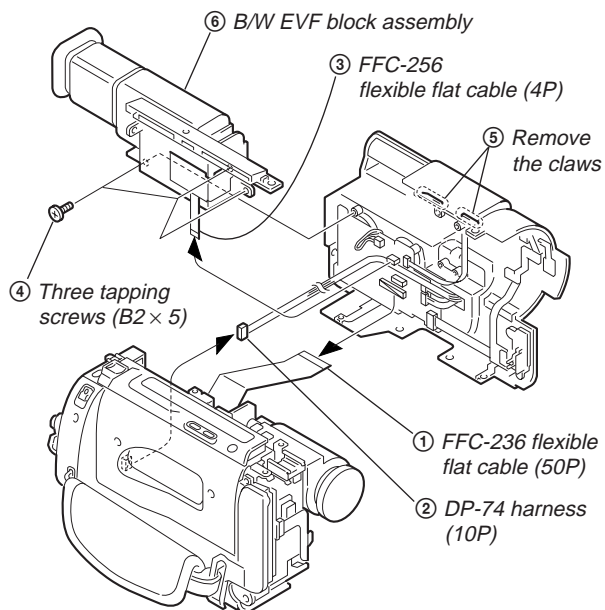


2-6. EVF BLOCK ASSEMBLY

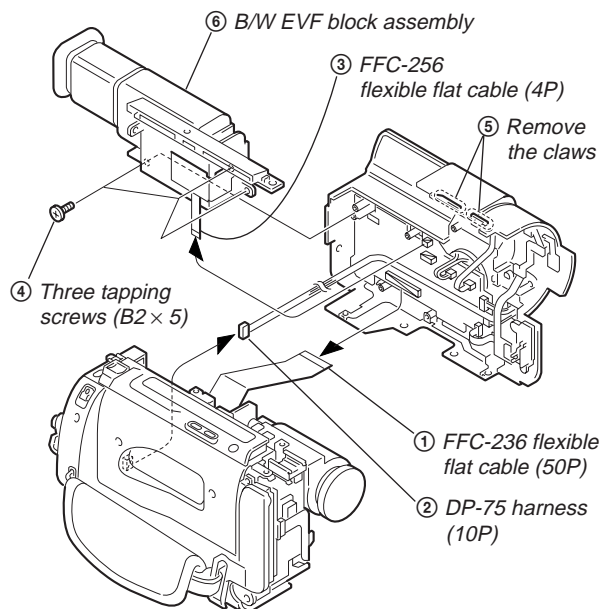
< TR MODEL >



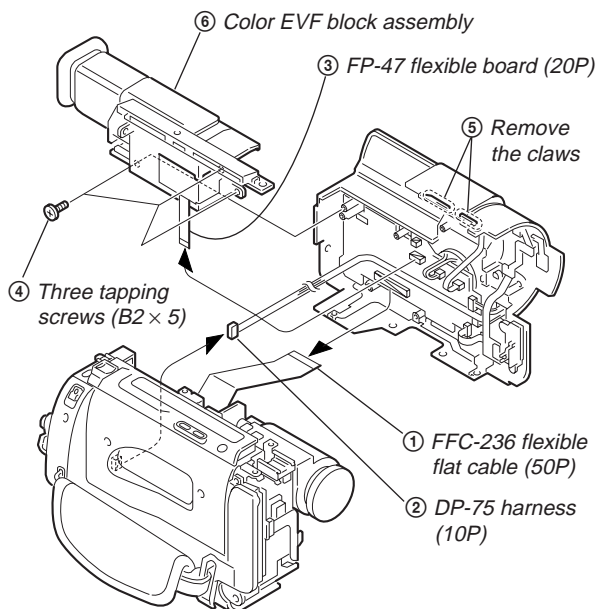
< 2.5 INCH LCD MODEL >



< 3.0/3.5 INCH LCD MODEL WITH B/W EVF >

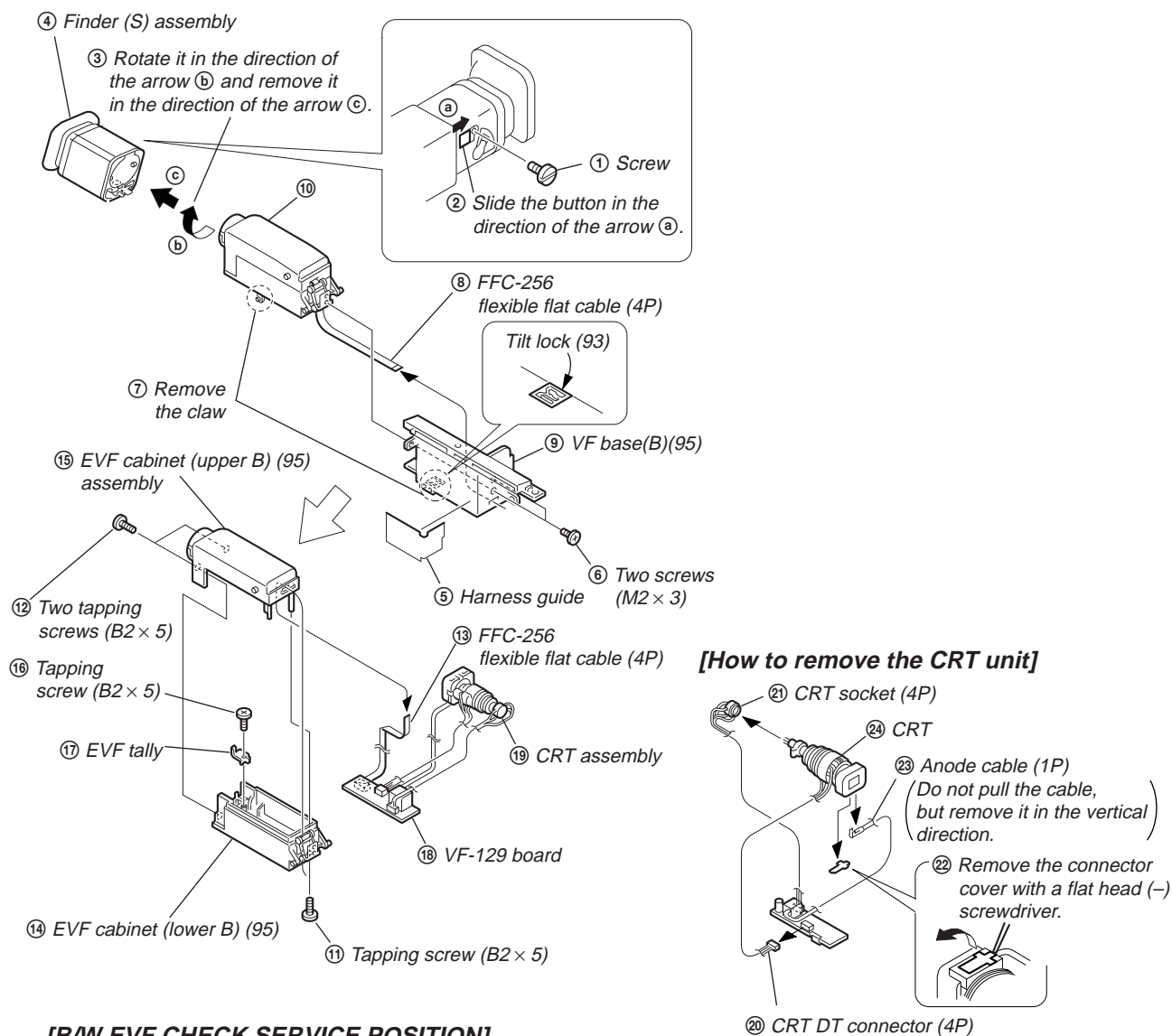


< 3.0 INCH LCD MODEL WITH COLOR EVF >

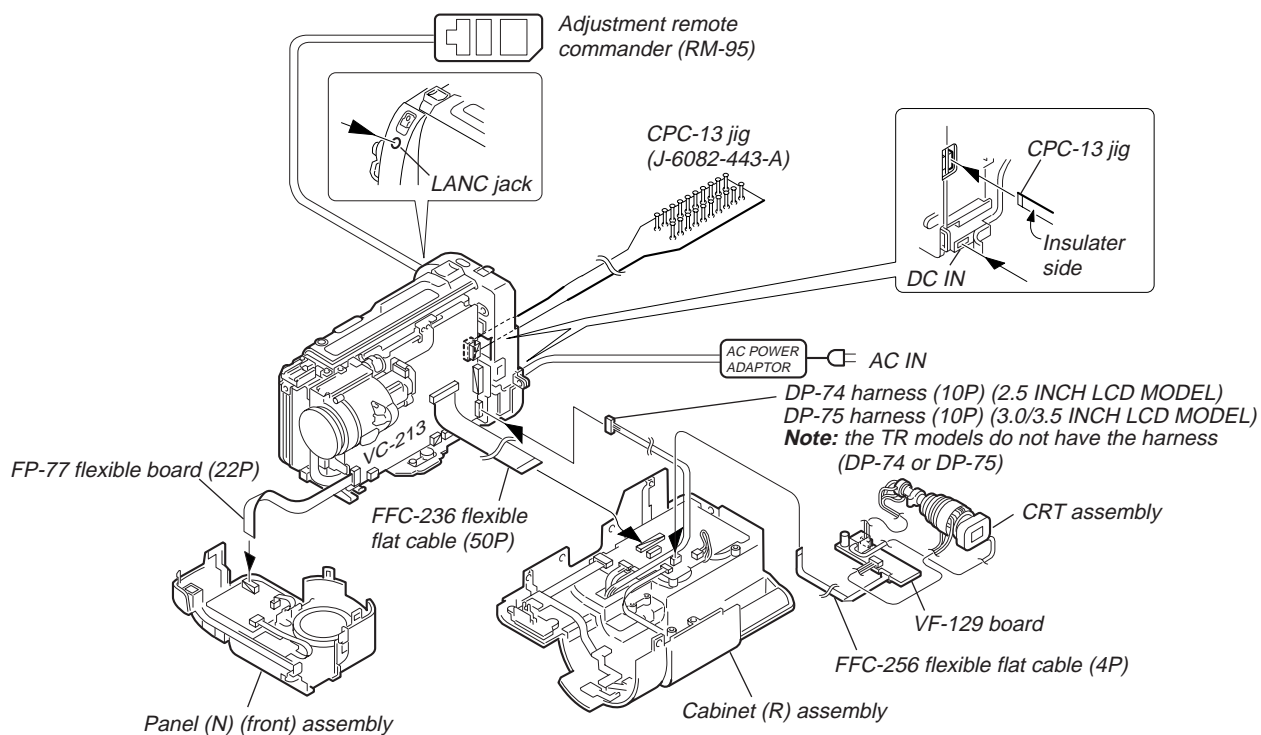


Refer to page 2-7 for disassembly of VF-129 board (B/W EVF).
Refer to page 2-8 for disassembly of VF-126 board (Color EVF).

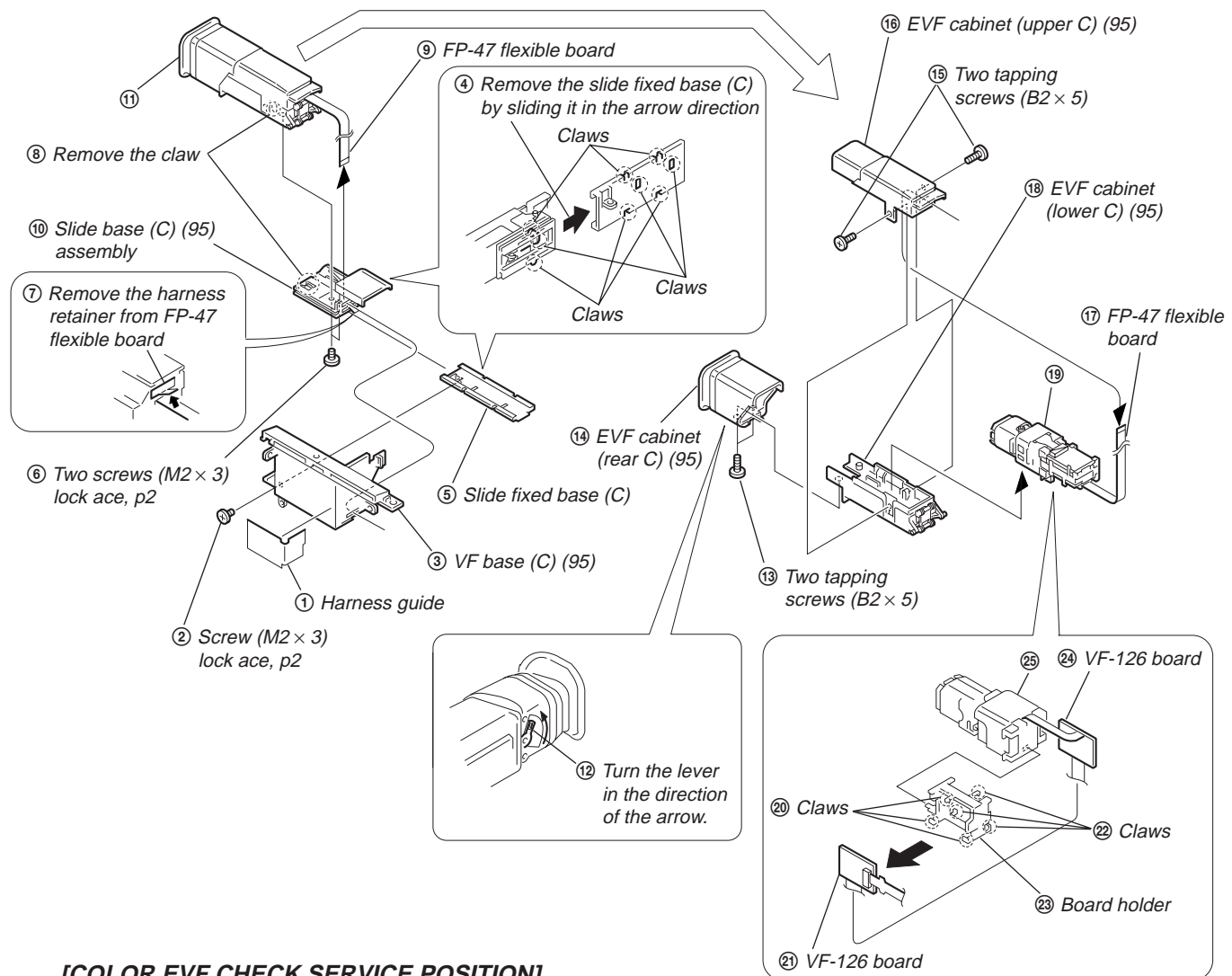
2-7. VF-129 BOARD (B/W EVF MODEL)



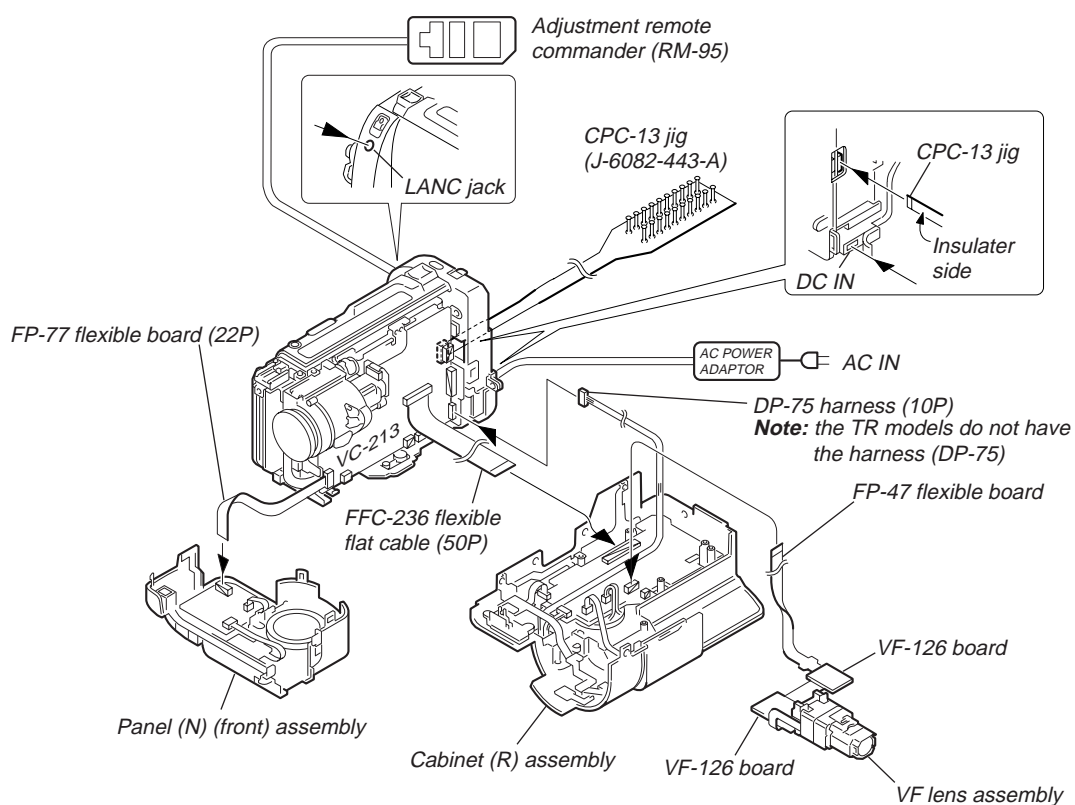
[B/W EVF CHECK SERVICE POSITION]



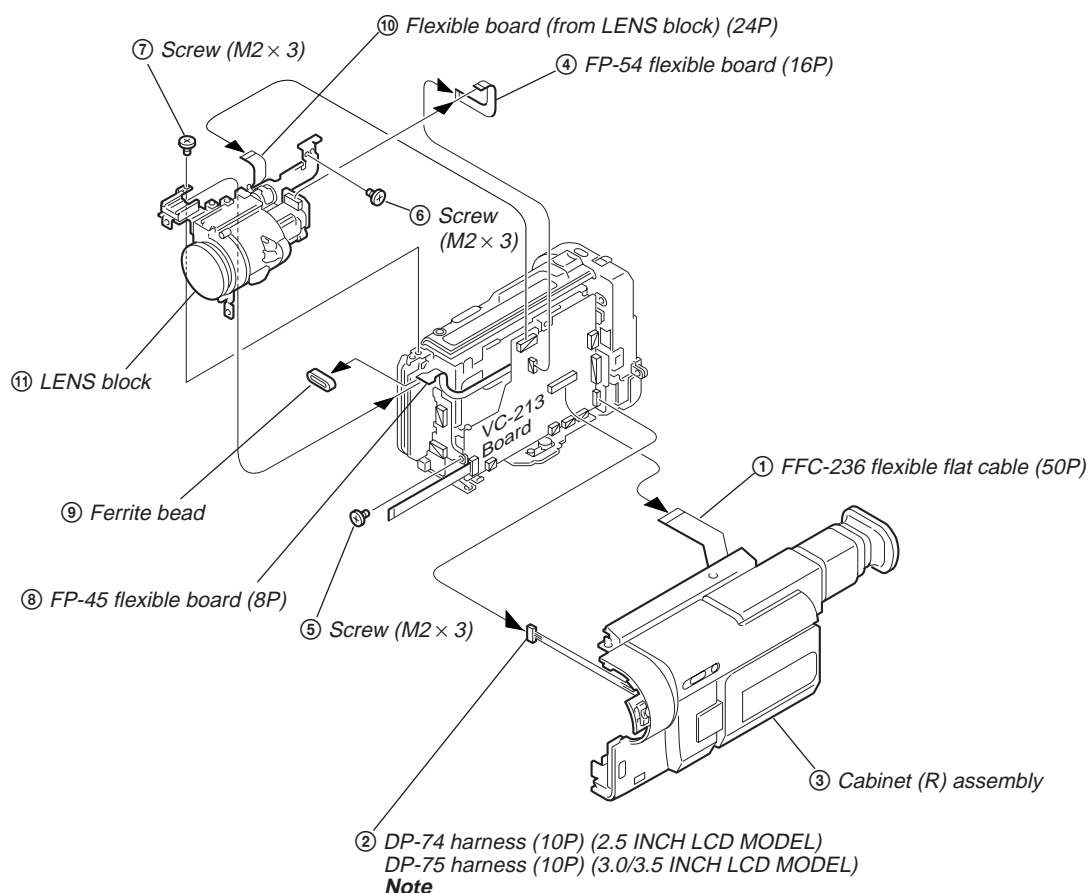
2-8. VF-126 BOARD (COLOR EVF MODEL)



[COLOR EVF CHECK SERVICE POSITION]

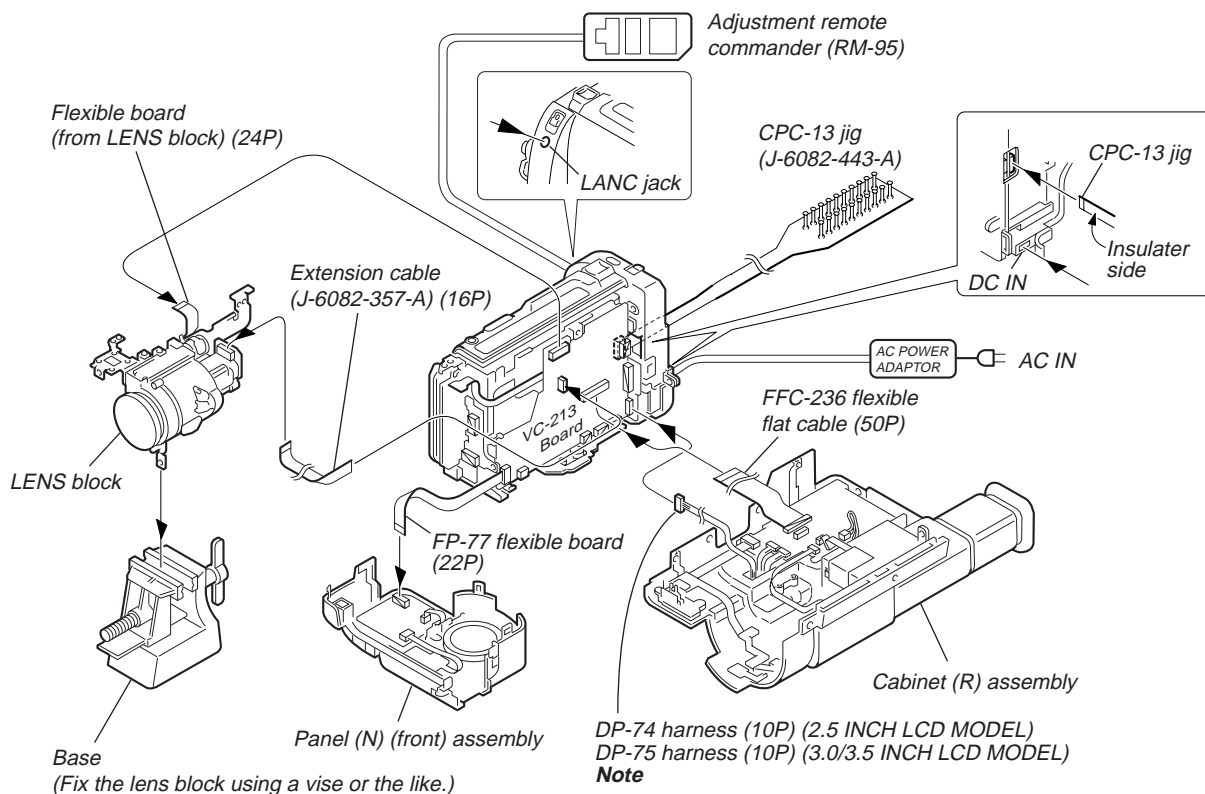


2-9. LENS BLOCK



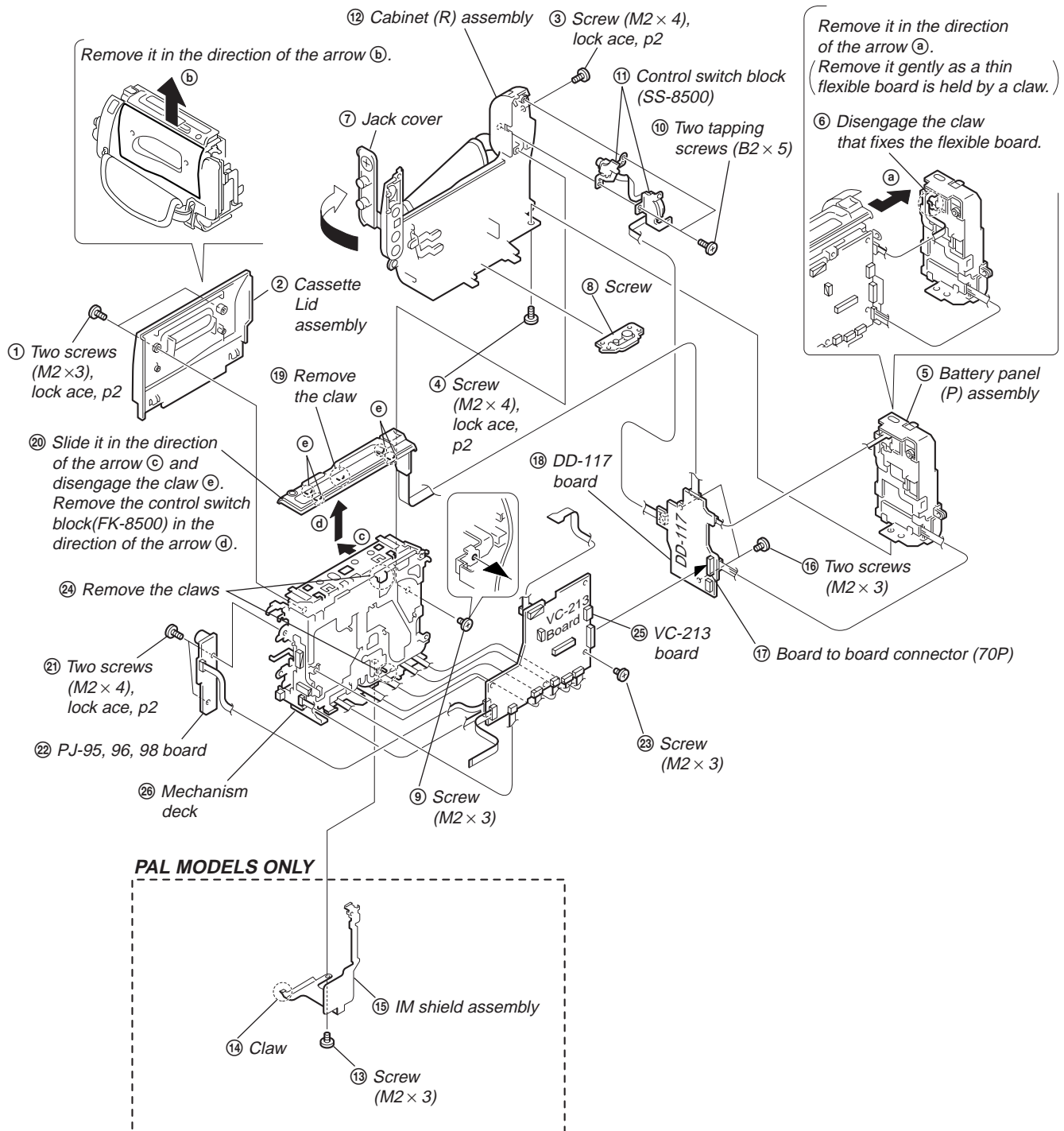
Note: the TR models do not have the harness (DP-74 or DP-75) shown by Note.

[LENS BLOCK CHECK SERVICE POSITION]



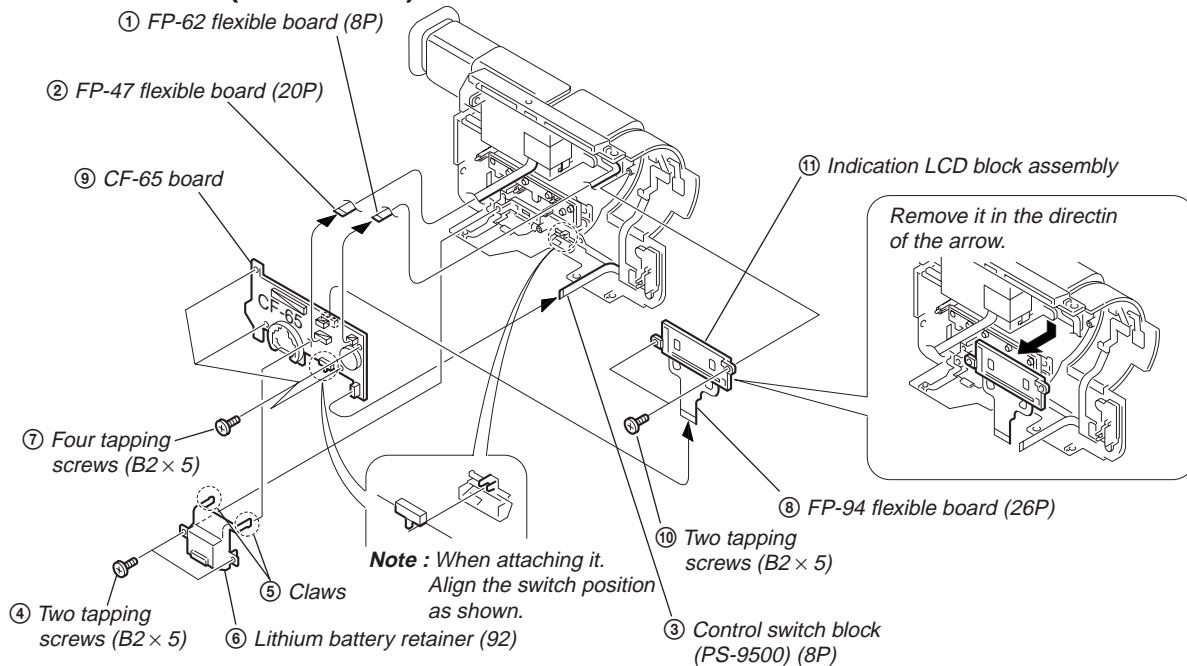
Note: the TR models do not have the harness (DP-74 or DP-75) shown by Note.

2-10.MECHANISM DECK, VC-213, DD-117, PJ-95, 96, 98 BOARDS

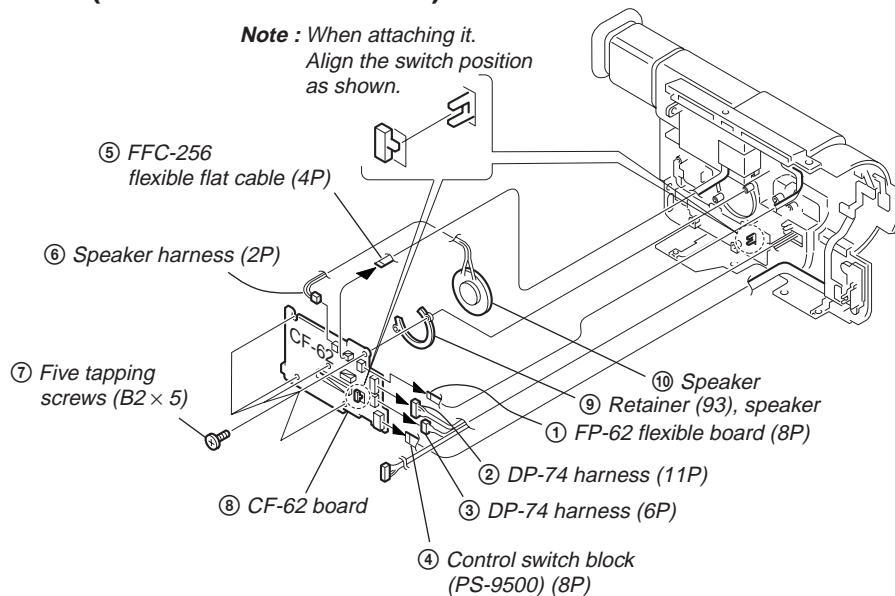


Note: the TR models do not have the harness (DP-74 or DP-75) shown by Note.

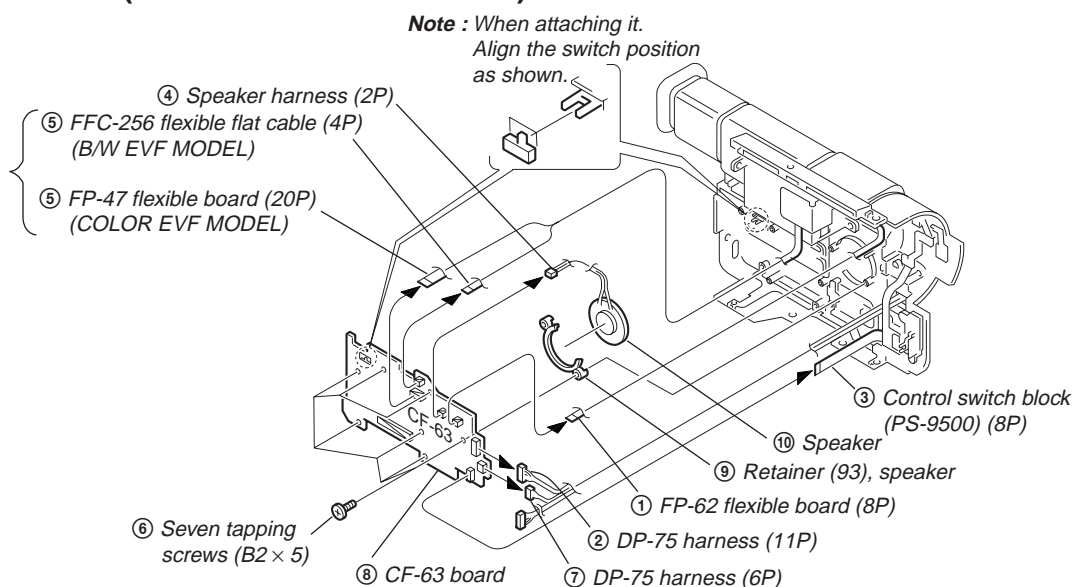
2-11.CF-65 BOARD (TR MODEL)



2-12.CF-62 BOARD (2.5 INCH LCD MODEL)

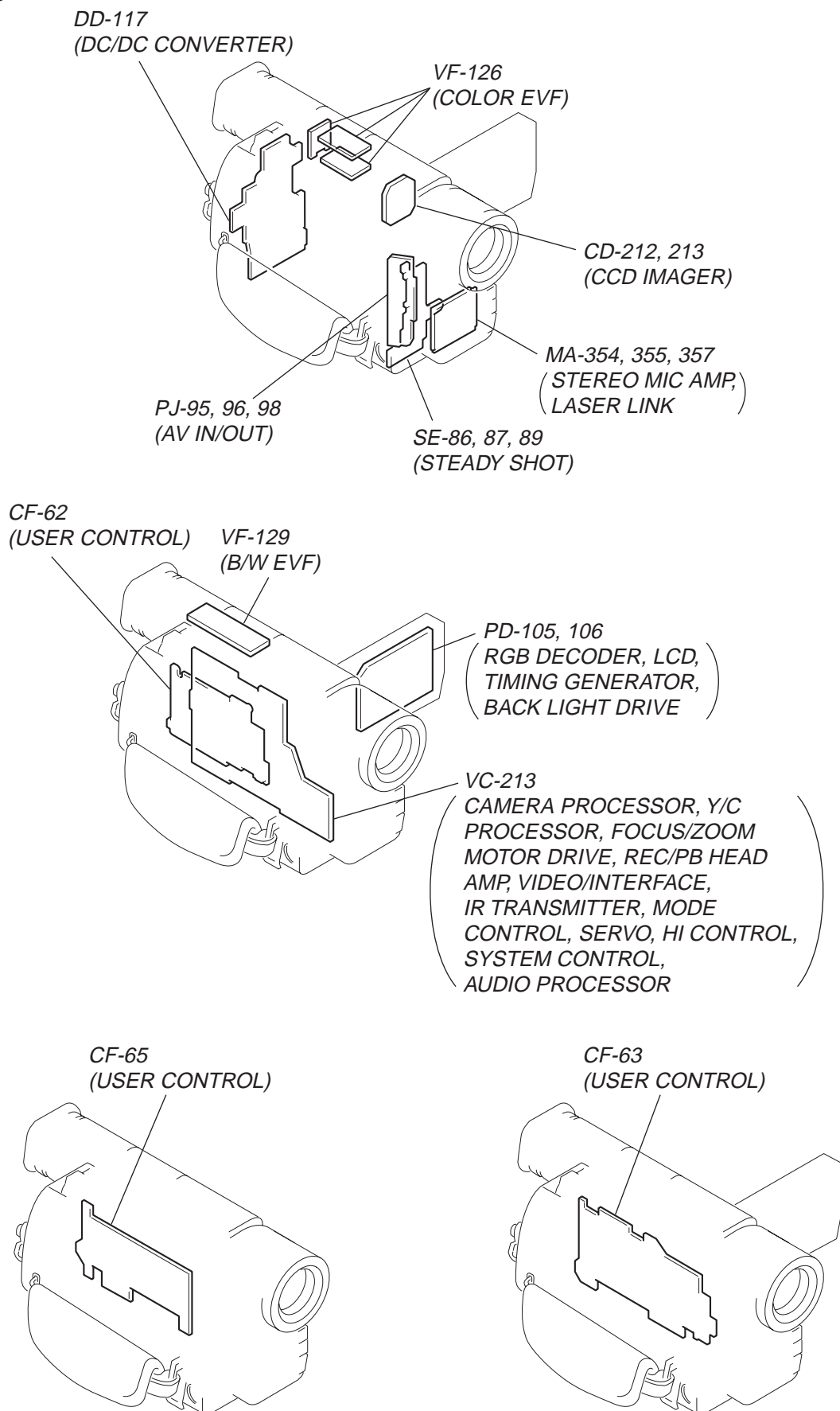


2-13.CF-63 BOARD (3.0/3.5 INCH LCD MODEL)

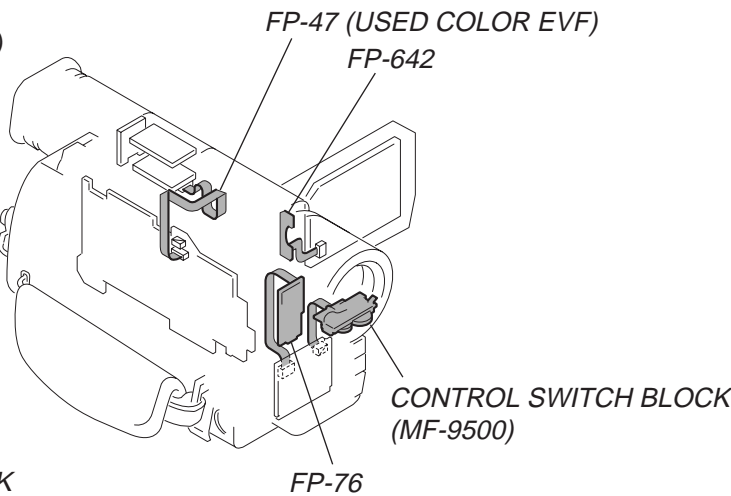
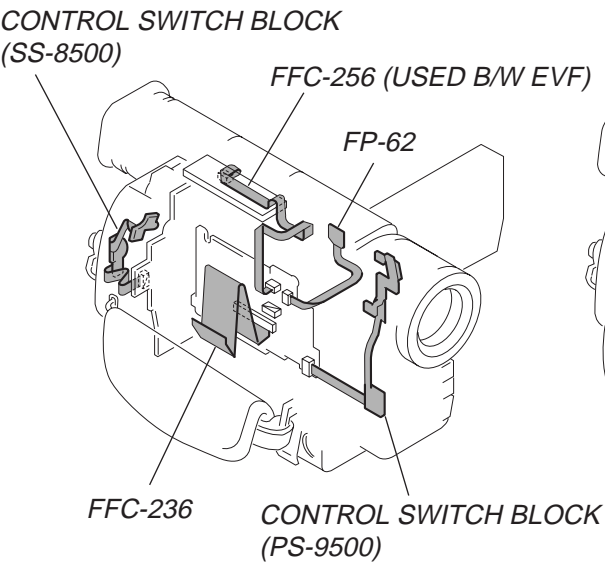
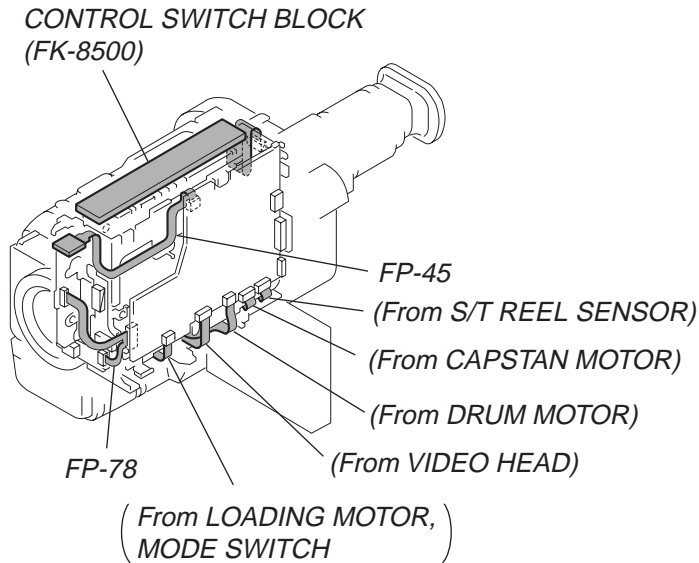
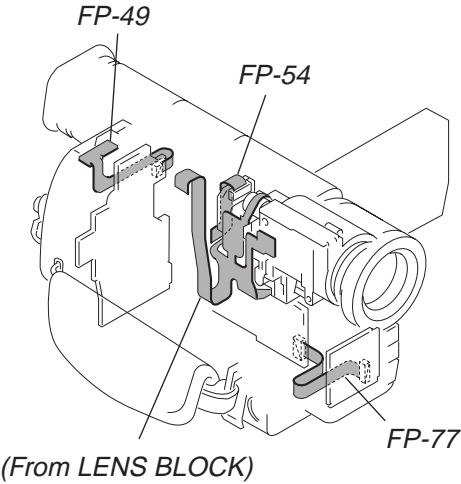


2-14. CIRCUIT BOARDS LOCATION

NOTE: For the difference of the printed wiring boards due to needs and destinations, refer to "Table for differences of function" on page 4.



2-15.FLEXIBLE BOARDS LOCATION

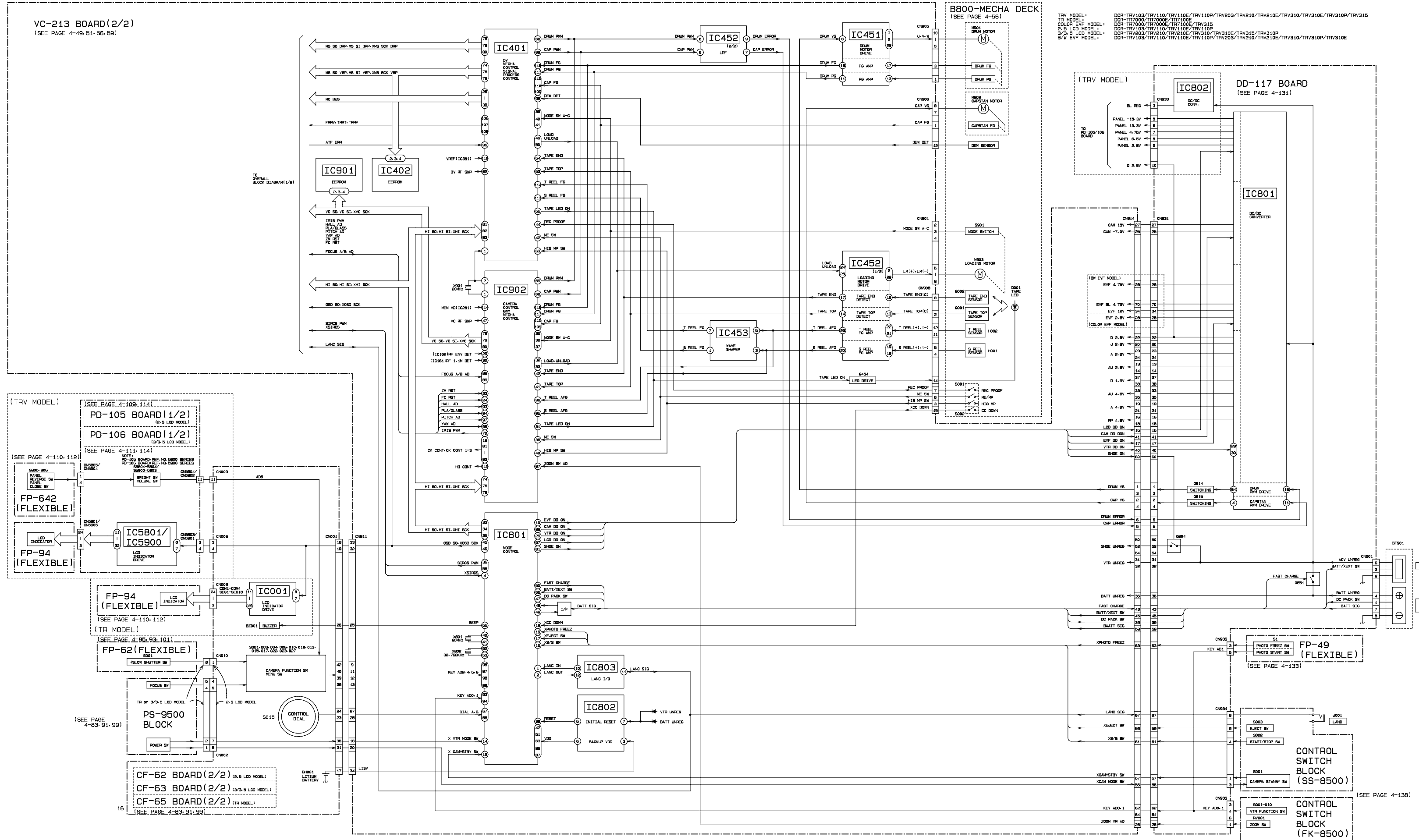


3-1. OVERALL BLOCK DIAGRAM (1)

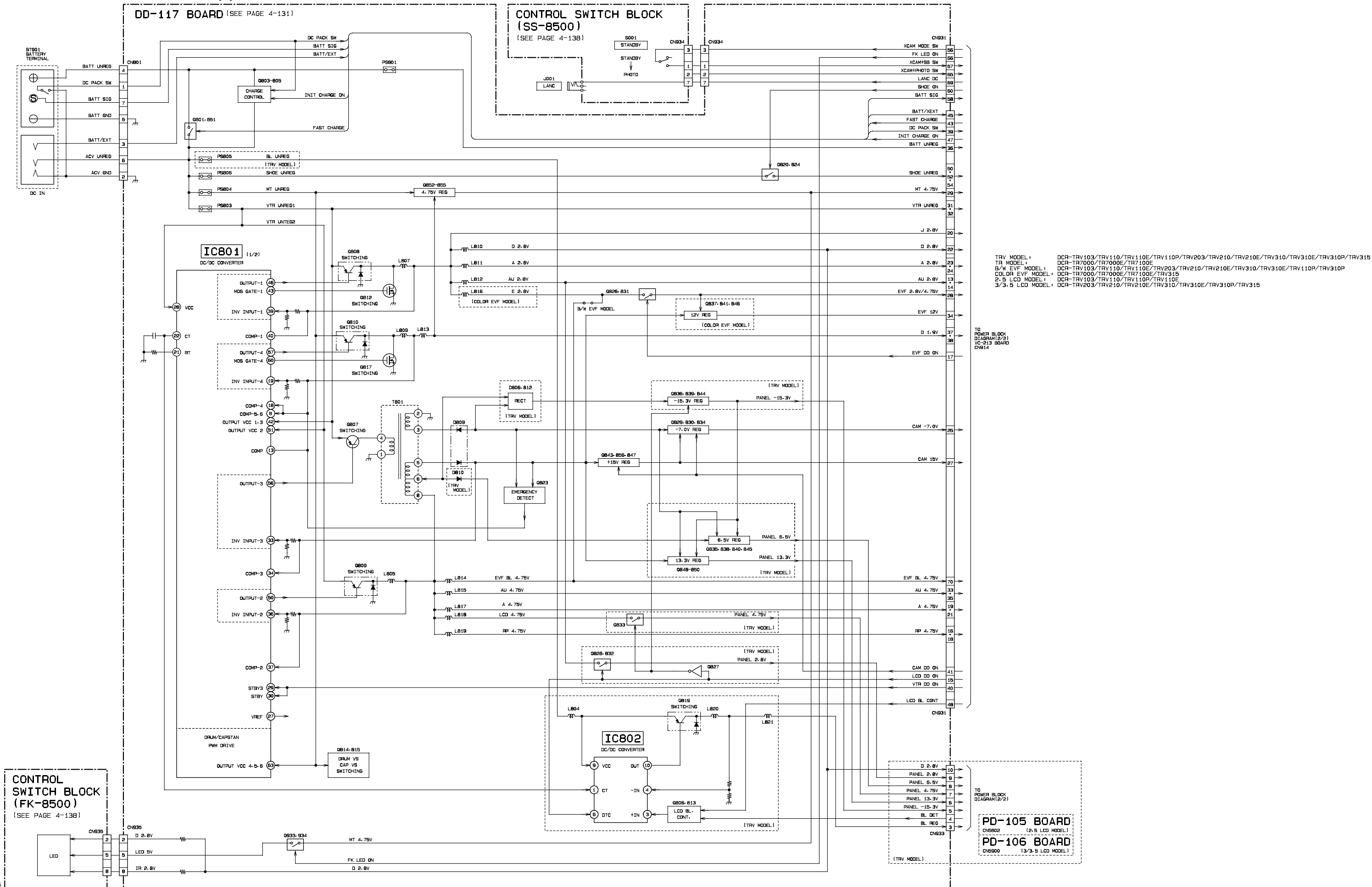
3-1



3-2. OVERALL BLOCK DIAGRAM (2)



3. POWER BLOCK DIAGRAM (1)

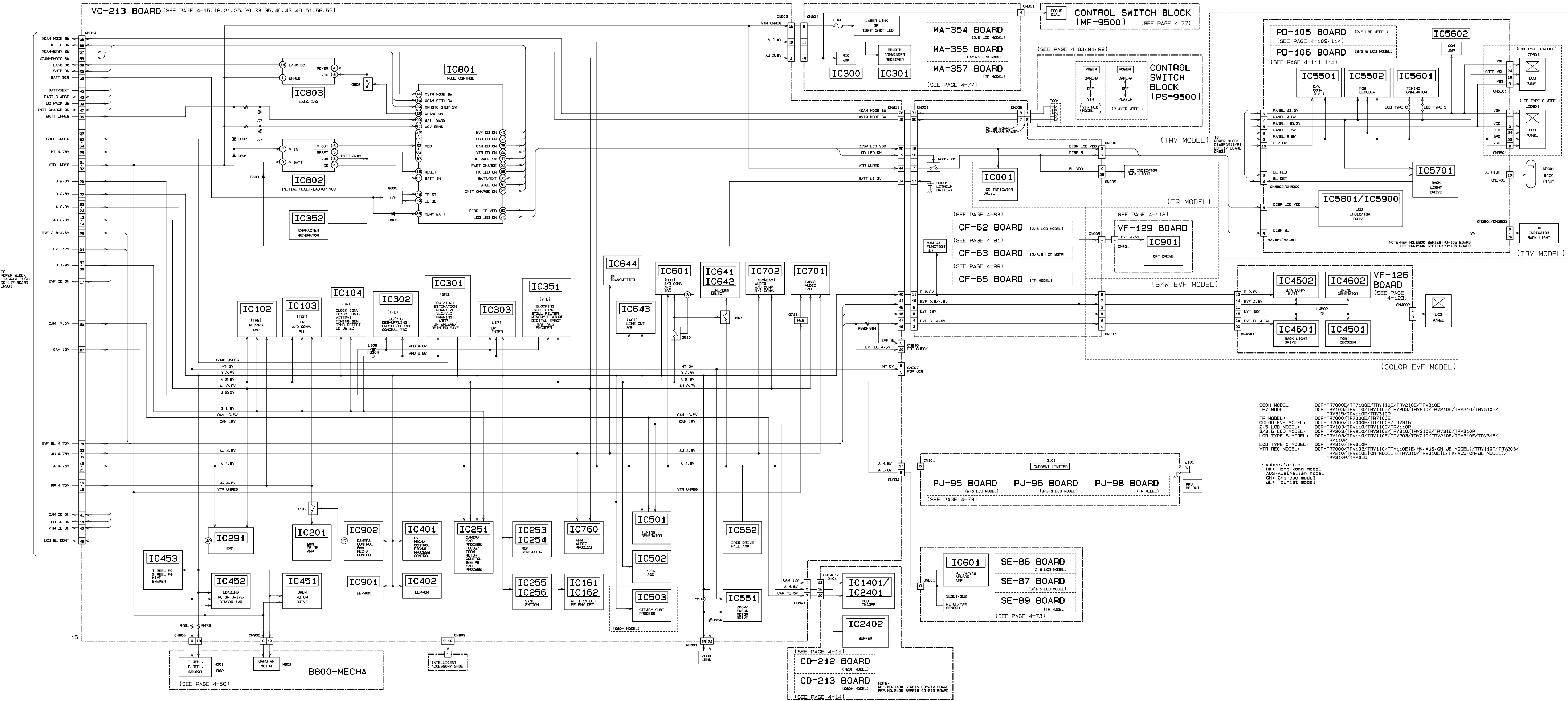


TRV MODEL :	DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315
TRV MODEL :	DCR-TRV7000/TRV7000E/TRV7100E
B/K EVF MODEL :	DCR-TRV103/TRV110/TRV110E/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV110P/TRV310P
COLOR EVF MODEL :	DCR-TRV7000/TRV7000E/TRV7100E/TRV315
2.5 LCD MODEL :	DCR-TRV103/TRV110/TRV110P/TRV110E
3/3.5 LCD MODEL :	DCR-TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315

TO
POWER BLOCK
DIAGRAM(2/2)
VC-213 BOARD
CN914

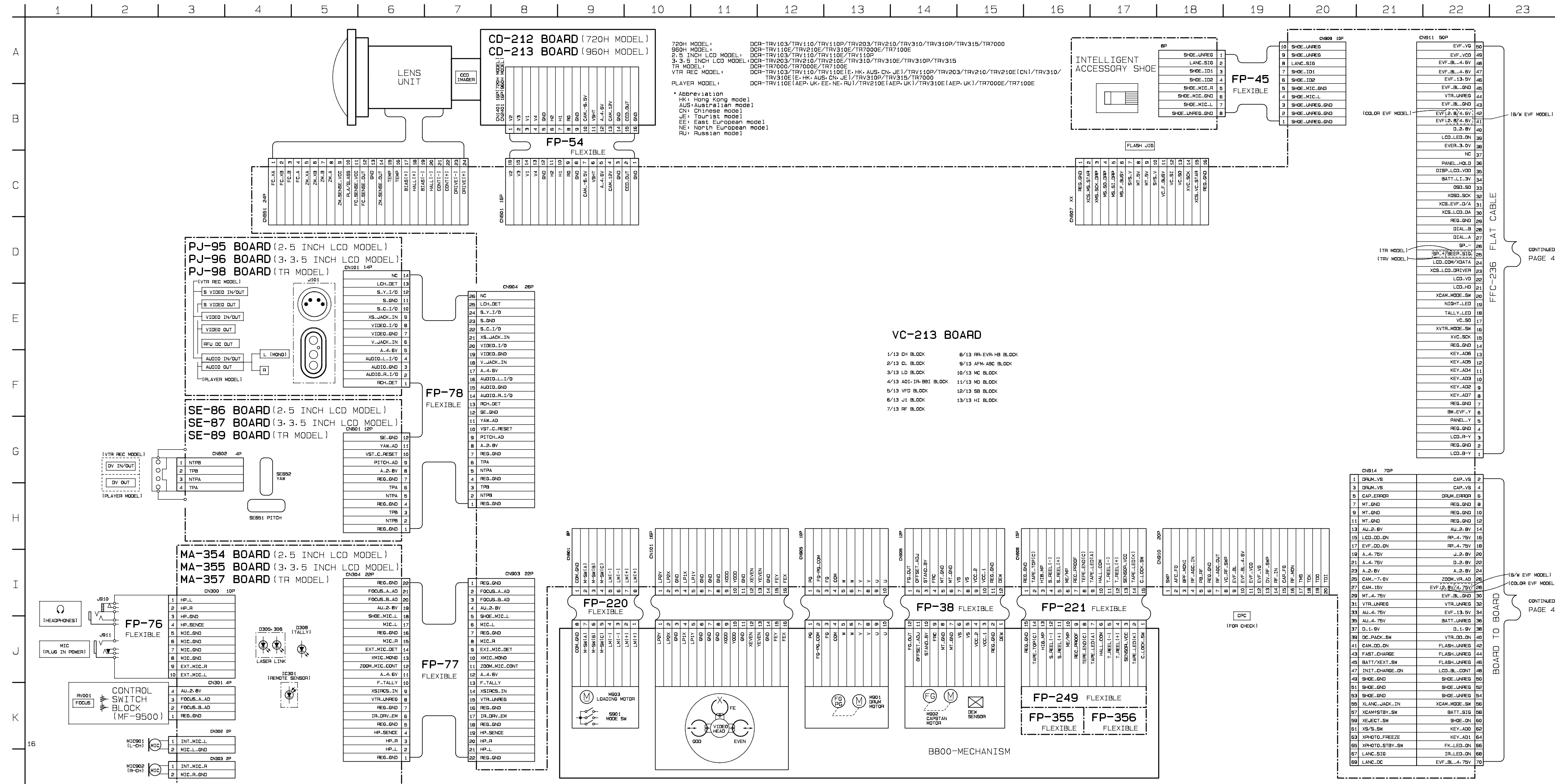
PD-105 BOARD	CN5802	(2.5 LCD MODEL)
PD-106 BOARD	CN5900	(3/3.5" CD MODEL)

3-4. POWER BLOCK DIAGRAM (2)



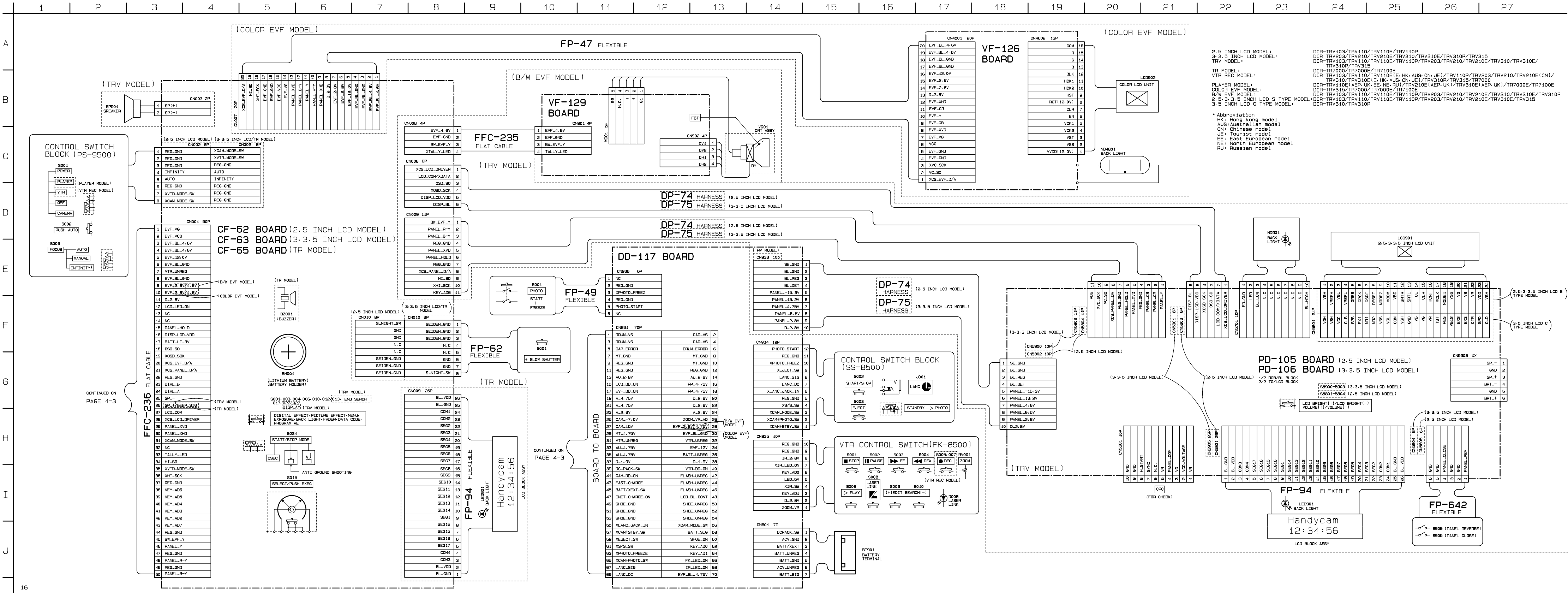
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM-1



FRAME SCHEMATIC DIAGRAM (1/2)

FRAME SCHEMATIC DIAGRAM-2

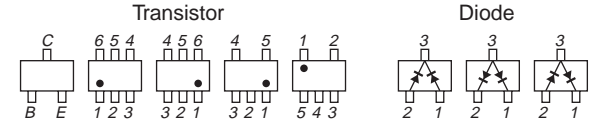


4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

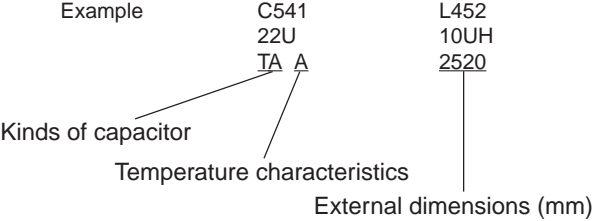
(For printed wiring boards)

- Pattern from the side which enables seeing.
(The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μF . 50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10W unless otherwise noted. $\text{k}\Omega=1000\Omega$, $\text{M}\Omega=1000\text{k}\Omega$.
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.



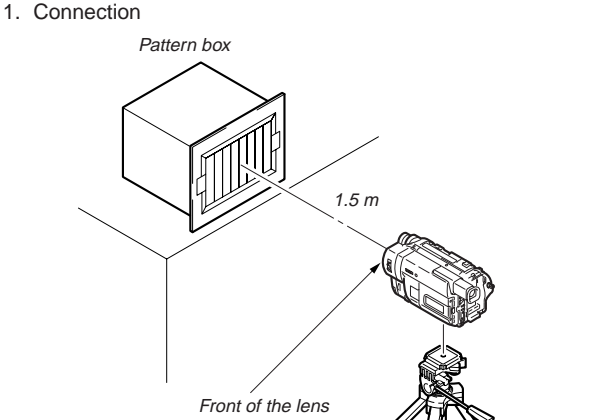
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
- In such cases, the unused circuits may be indicated.
- Parts with \star differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
XEDIT \rightarrow EDIT PB/XREC \rightarrow PB/REC
- non flammable resistor
- fusible resistor
- panel designation
- B+ Line
- B- Line
- IN/OUT direction of (+,-) B LINE.
- adjustment for repair.
- Circled numbers refer to waveforms.

Note :
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Note :
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.
(VOM of DC 10 $\text{M}\Omega$ input impedance is used.)
- Voltage values change depending upon input impedance of VOM used.)



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

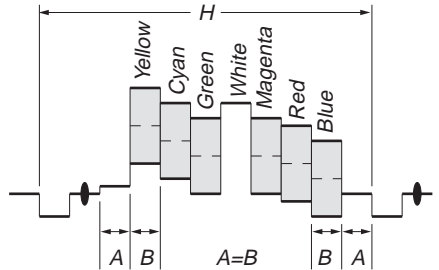


Fig. a (Video output terminal output waveform)

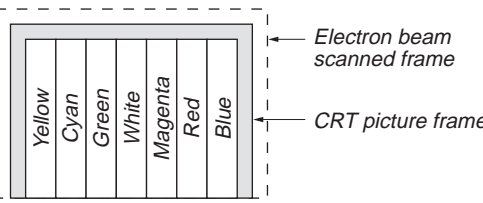
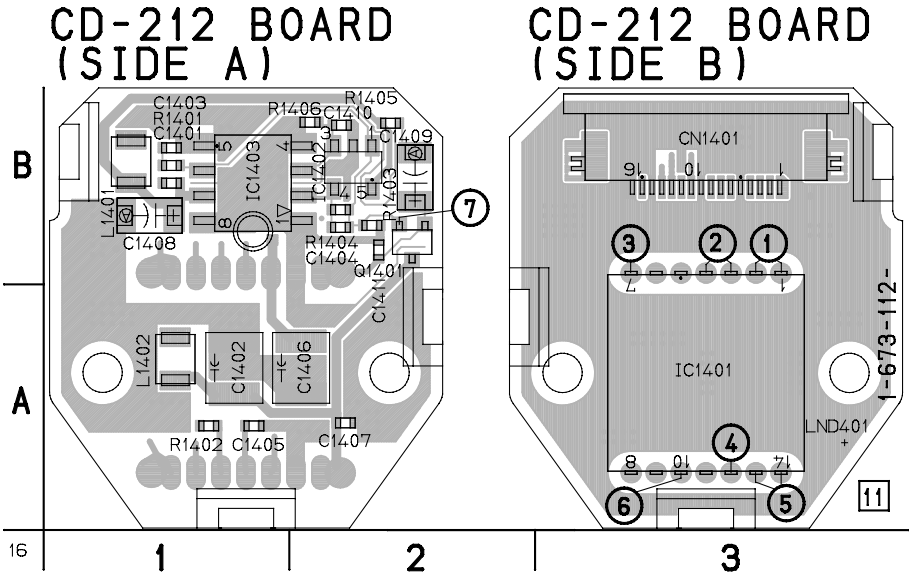


Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

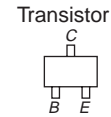
CD-212 (CCD IMAGER) PRINTED WIRING BOARD (720H MODEL)

— Ref. No. CD-212 Board; 10,000 Series —

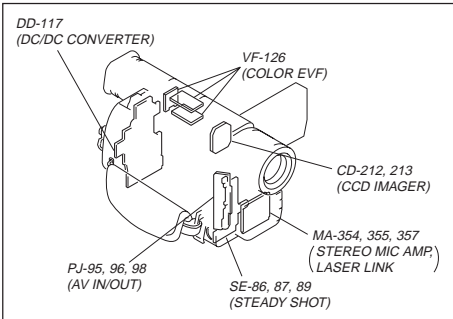


For printed wiring boards

- This board is eight-layer print board. However, the patterns of layers two to seven have not been included in the diagram.
- Chip parts



There are few cases that the part printed on this diagram isn't mounted in this model.



CD-212 BOARD

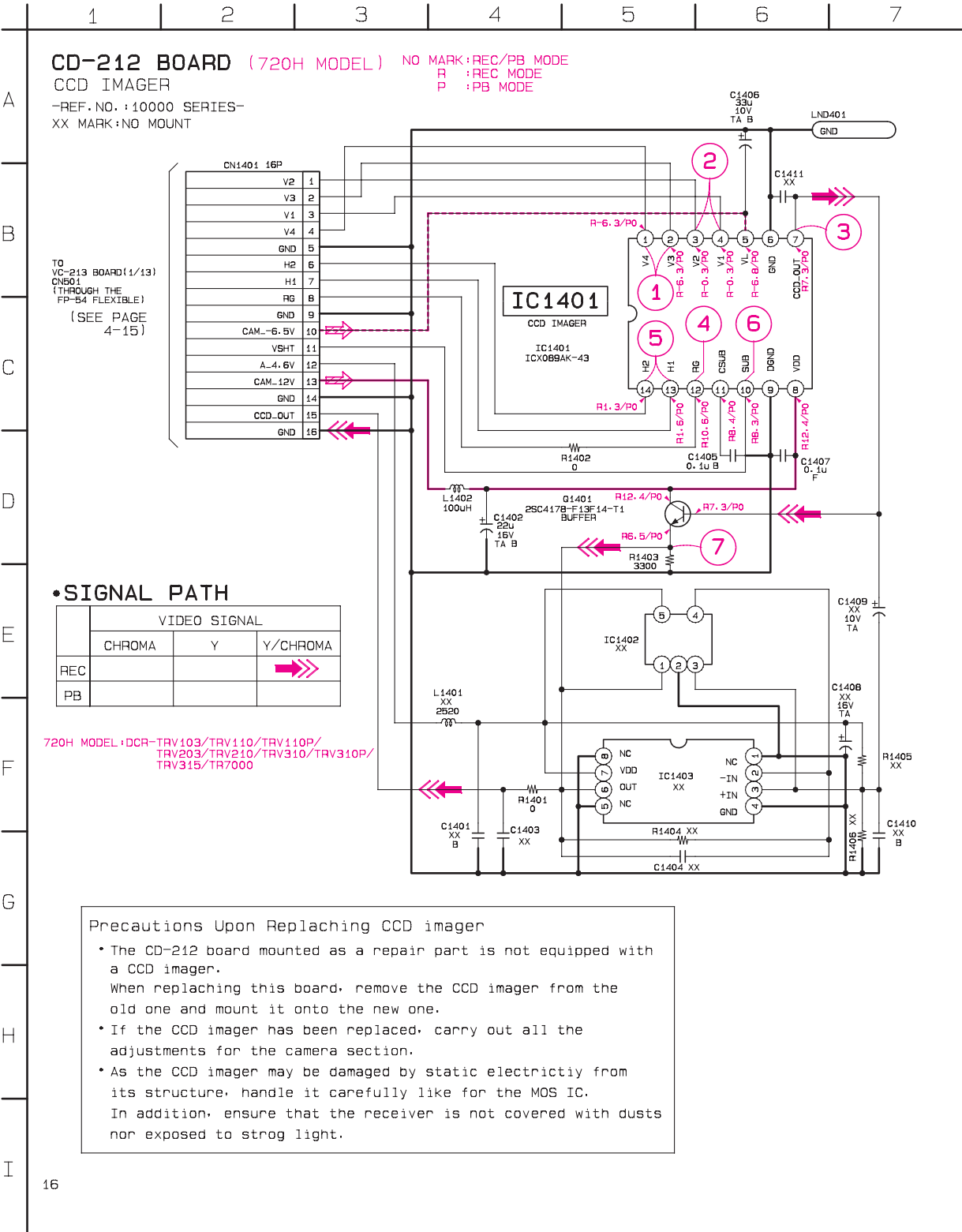
- C1401 B-1
- C1402 A-1
- C1403 B-1
- C1404 B-2
- C1405 A-1
- C1406 A-1
- C1407 A-2
- C1408 B-1
- C1409 B-2
- C1410 B-2
- C1411 B-2

- CN1401 B-3
- IC1401 A-3
- IC1402 B-2
- IC1403 B-1

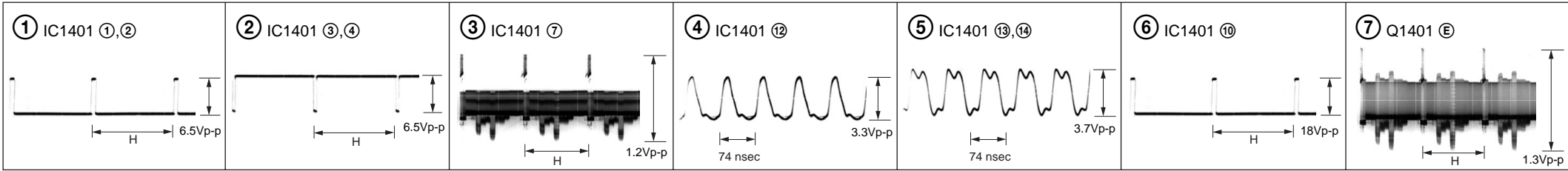
- L1401 B-1
- L1402 A-1

- Q1401 B-2

- R1401 B-1
- R1402 A-1
- R1403 B-2
- R1404 B-2
- R1405 B-2
- R1406 B-2
- R1408 B-2



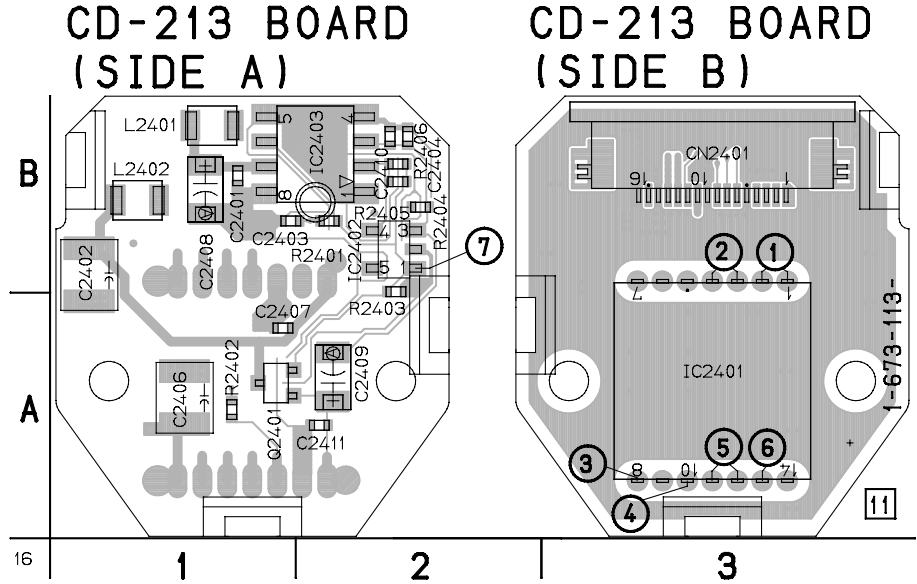
CD-212 BOARD
CAMERA REC



DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/
TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TR7000/TR7000E/TR7100E

CD-213 (CCD IMAGER) PRINTED WIRING BOARD (960H MODEL)

— Ref. No. CD-213 Board; 10,000 Series —



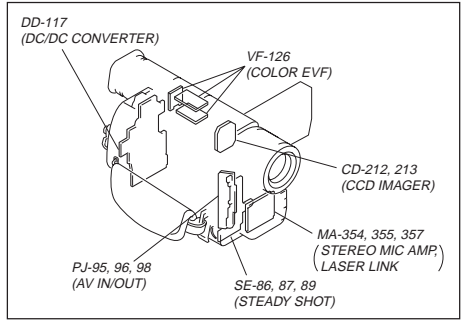
For printed wiring boards

- This board is eight-layer print board. However, the patterns of layers two to seven have not been included in the diagram.
- Chip parts

Transistor



There are few cases that the part printed on this diagram isn't mounted in this model.



CD-213 BOARD

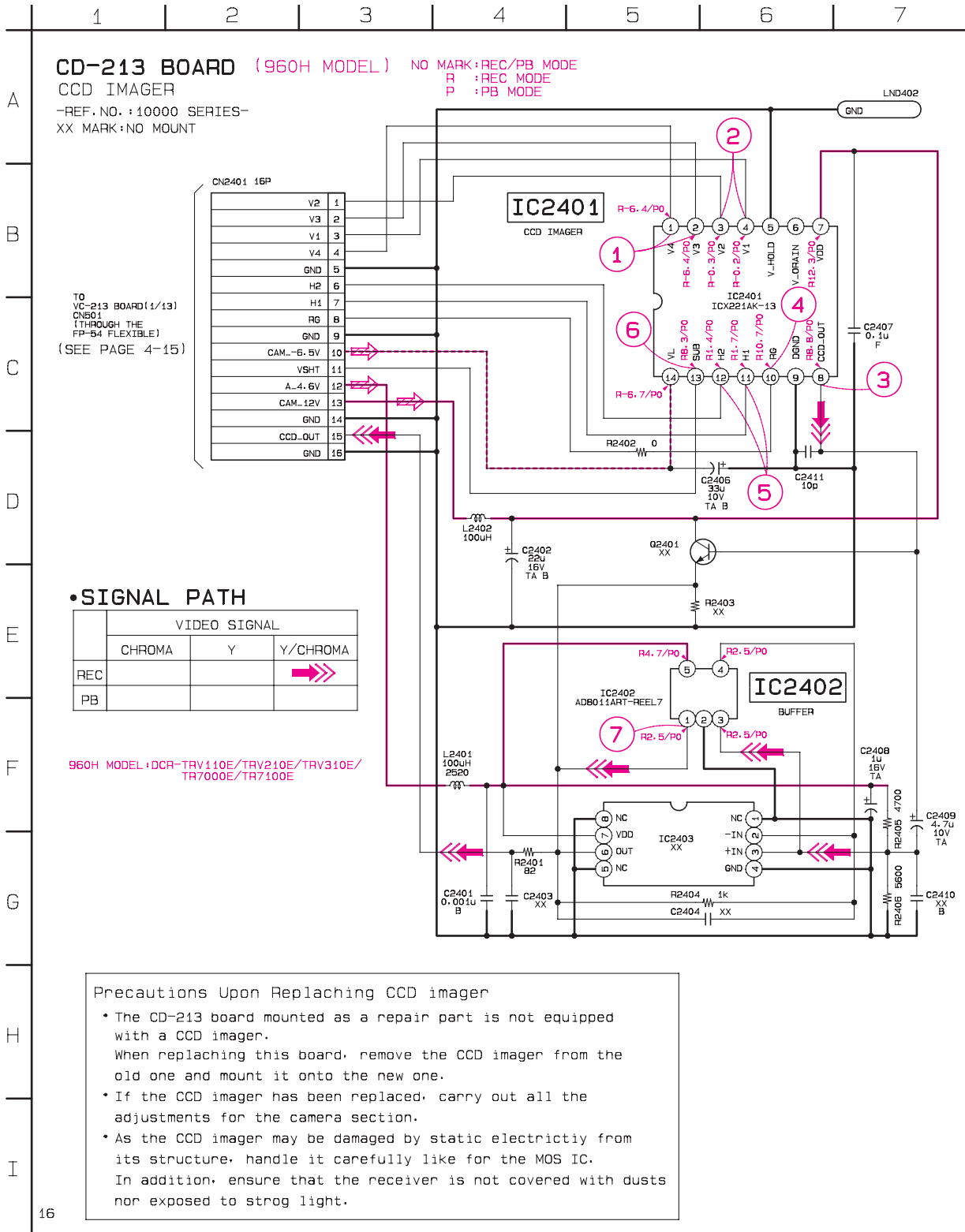
- C2401 B-1
- C2402 A-1
- C2403 B-1
- C2404 B-2
- C2406 A-1
- C2407 A-1
- C2408 B-1
- C2409 A-2
- C2410 B-2
- C2411 A-2

- CN2401 B-3
- IC2401 A-3
- IC2402 B-2
- IC2403 B-2

- L2401 B-1
- L2402 B-1

- Q2401 A-1

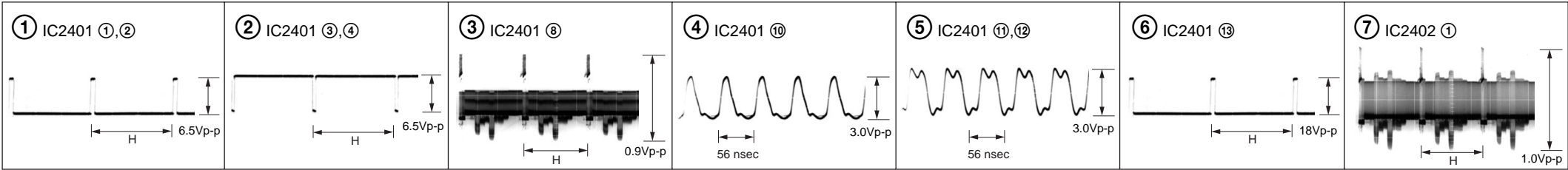
- R2401 B-2
- R2402 A-1
- R2403 B-2
- R2404 B-2
- R2405 B-2
- R2406 B-2



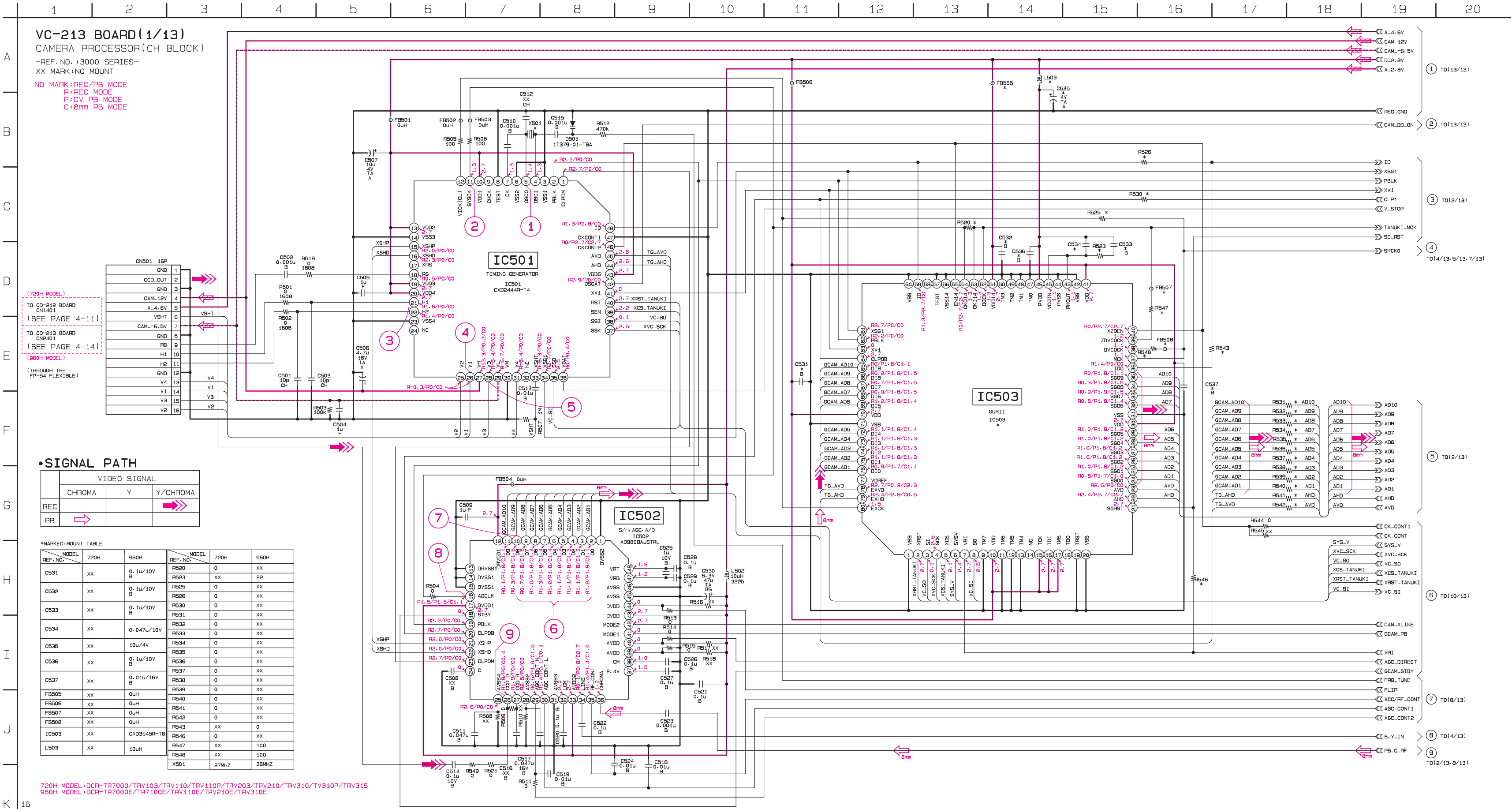
Precautions Upon Replaching CCD imager

- The CD-213 board mounted as a repair part is not equipped with a CCD imager. When replaching this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electrictiy from its structure, handle it carefully like for the MOS IC. In addition, ensure that the receiver is not covered with dusts nor exposed to strog light.

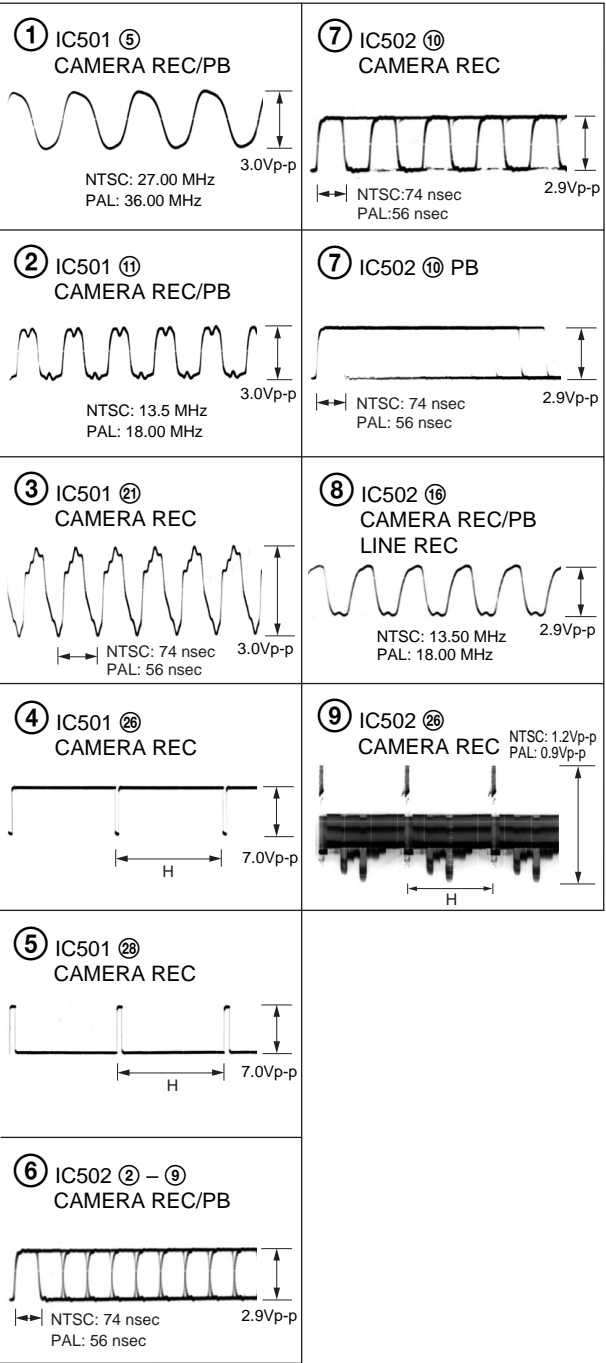
CD-213 BOARD
CAMERA REC



For schematic diagram
• Refer to page 4-65 for printed wiring board.



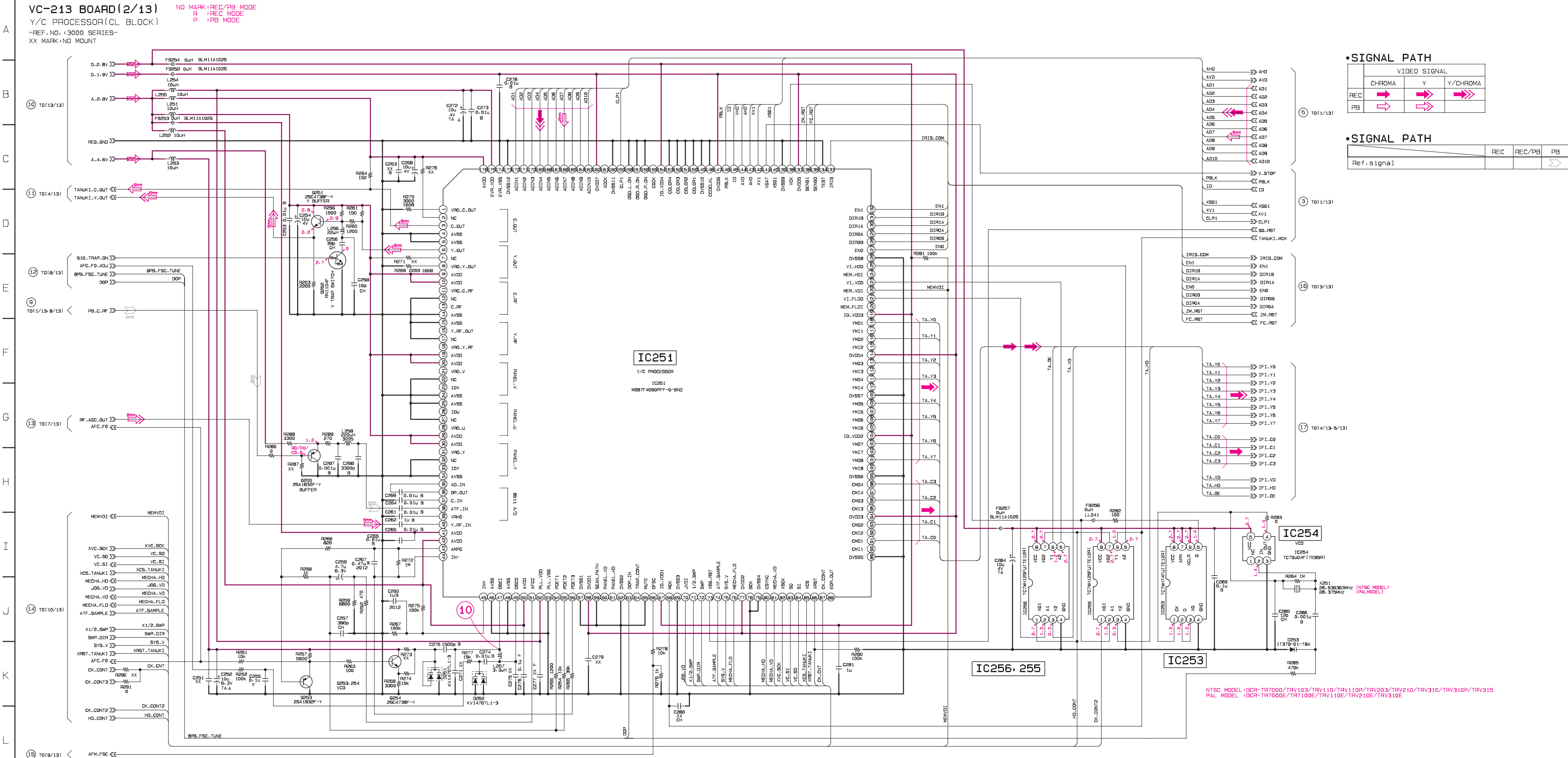
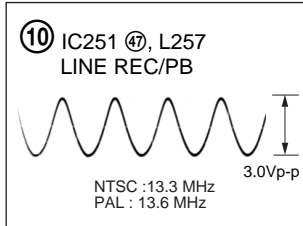
VC-213 BOARD (1/13)








DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/
TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TR7000/TR7000E/TR7100E

For schematic diagram
• Refer to page 4-65 for printed wiring board.


VC-213 BOARD (2/13)



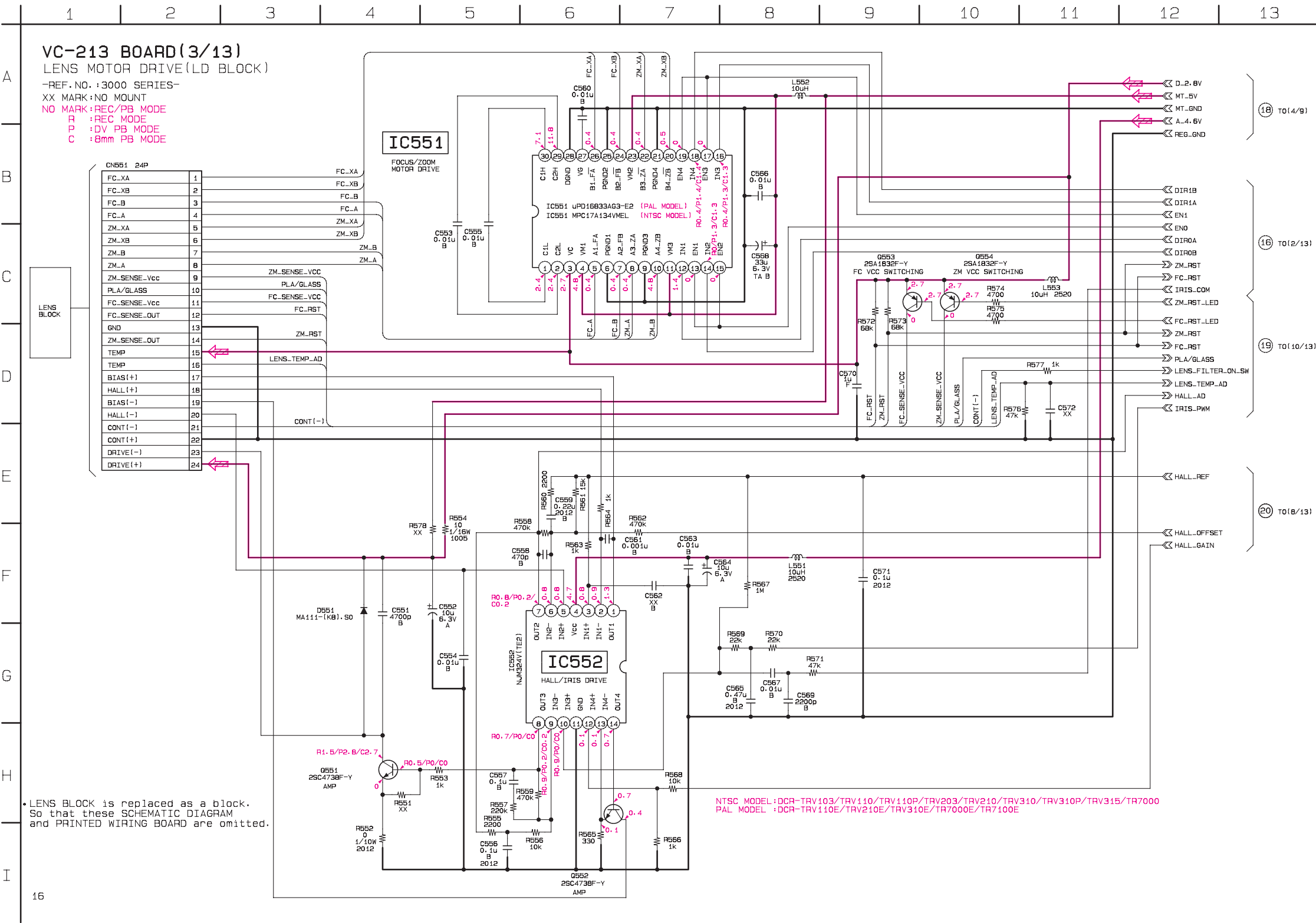
• SIGNAL PATH

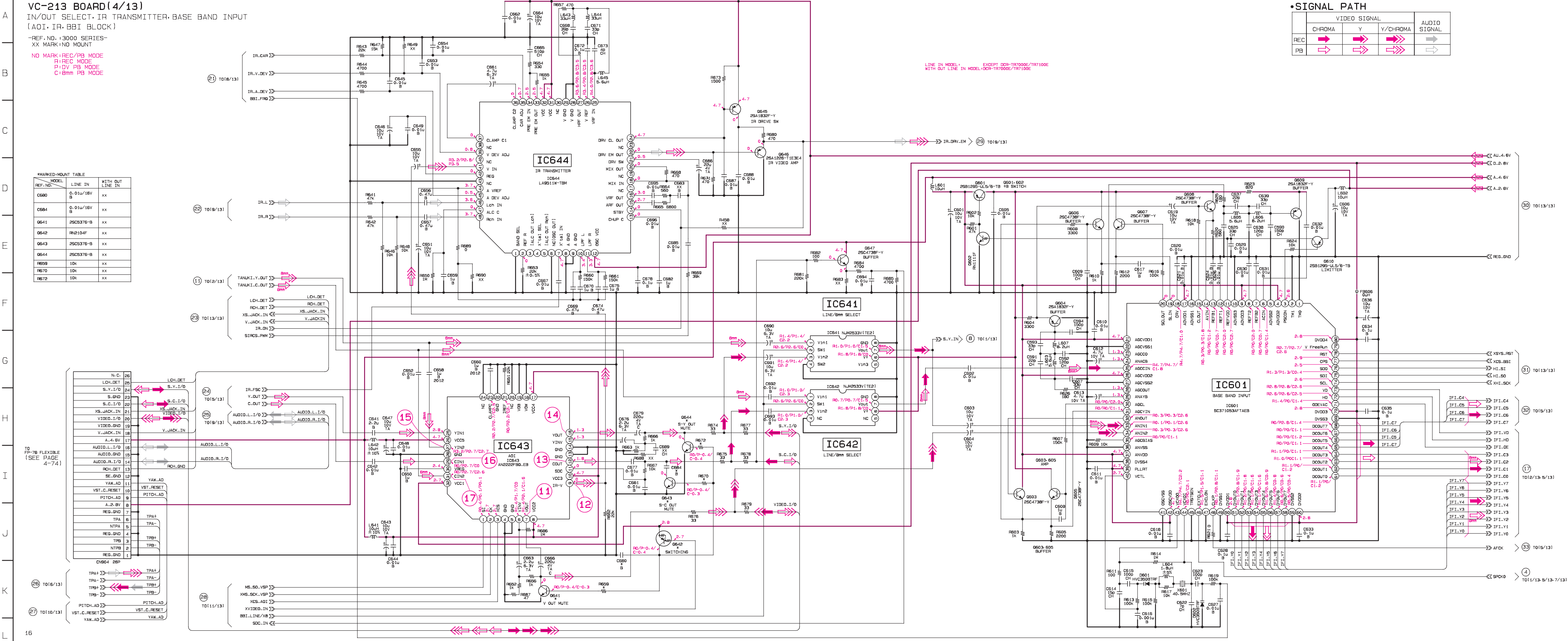
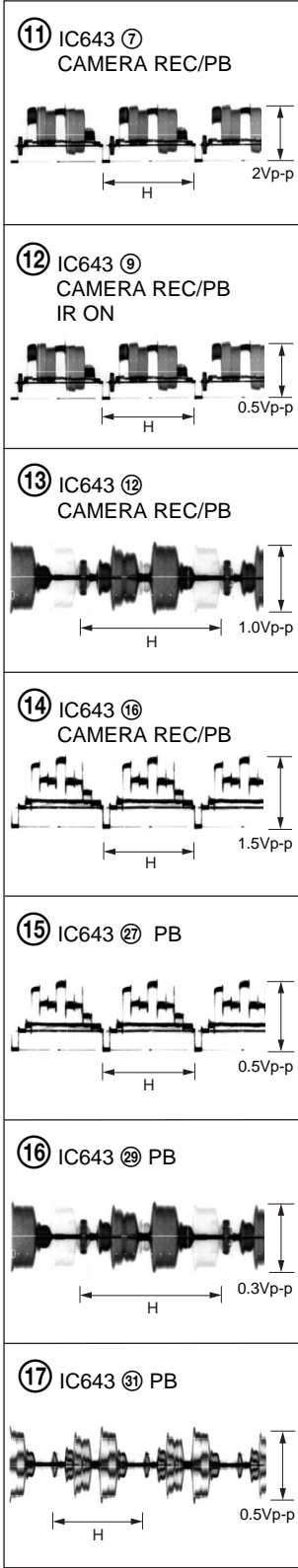
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB			

- SIGNAL PATH

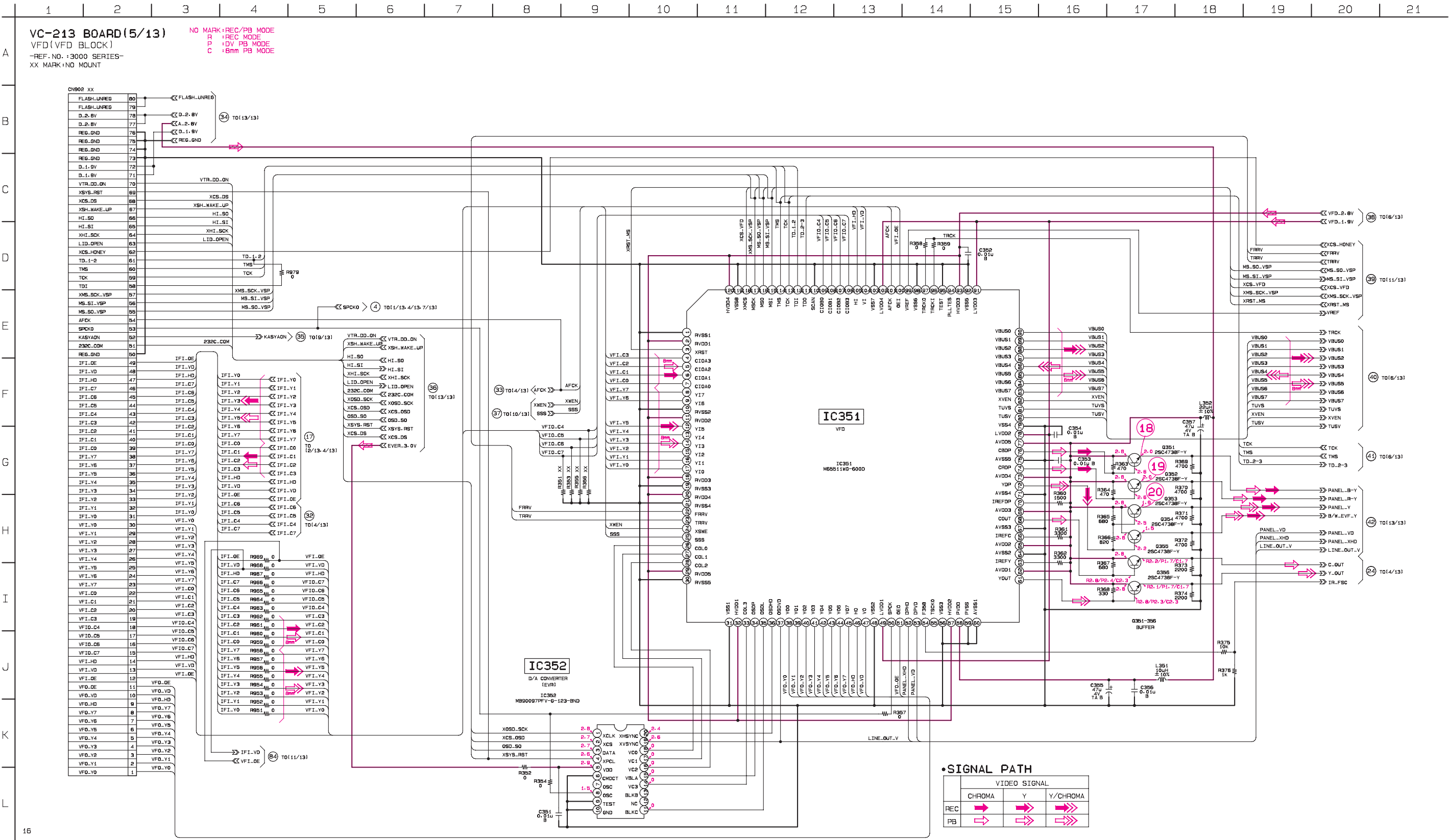
	REC	REC/PB	PB
Ref. signal			

For schematic diagram
• Refer to page 4-65 for printed wiring board.

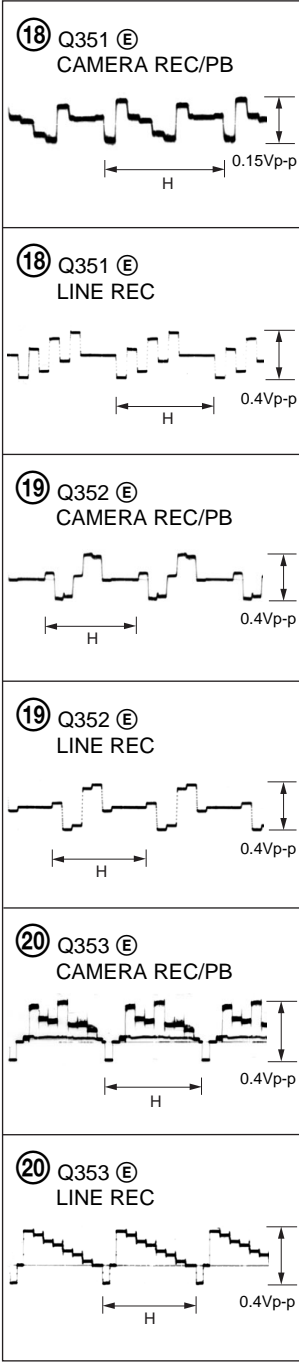




For schematic diagram
• Refer to page 4-65 for printed wiring board.



VC-213 BOARD (5/13)



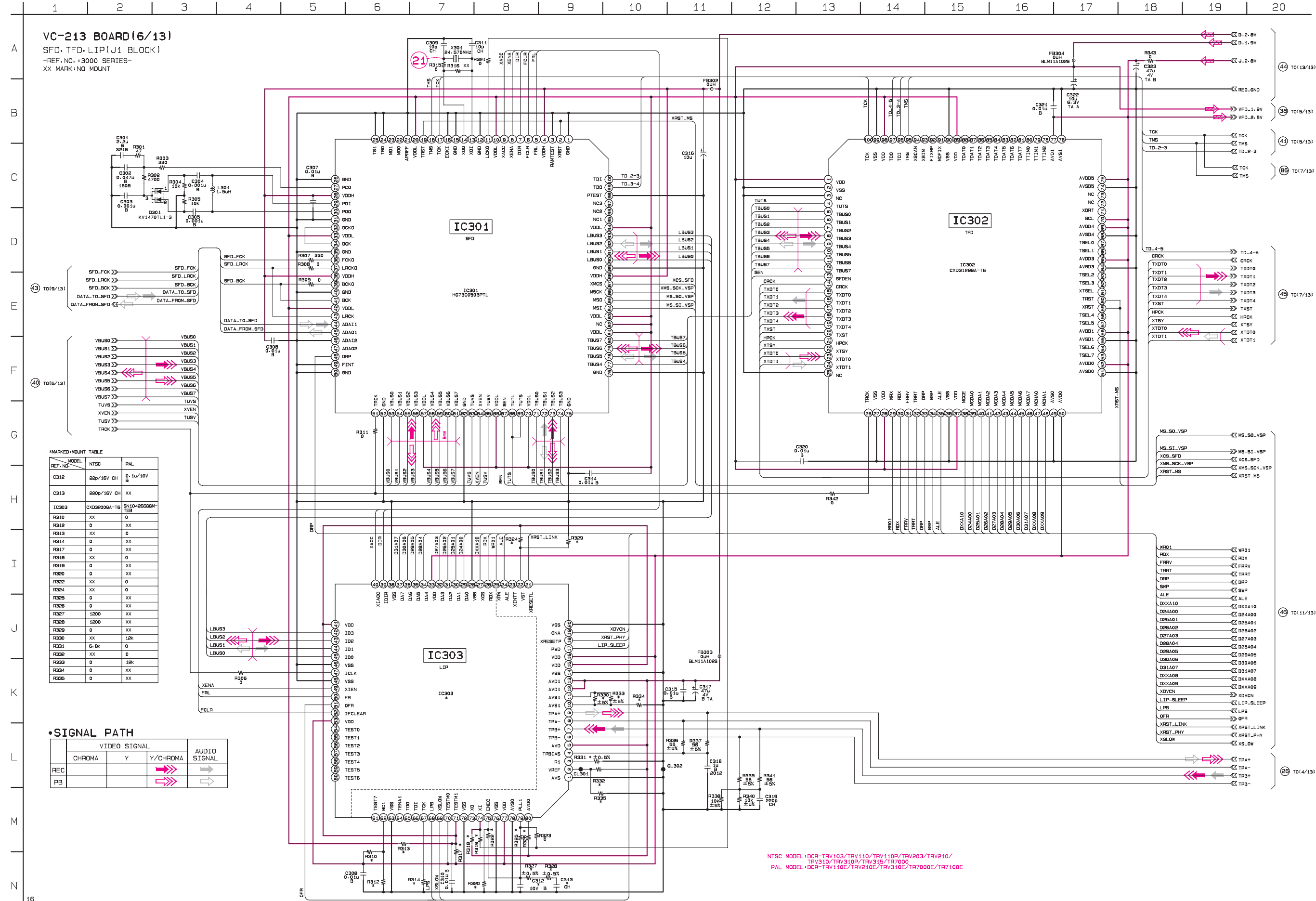
For schematic diagram

- Refer to page 4-65 for printed wiring board.

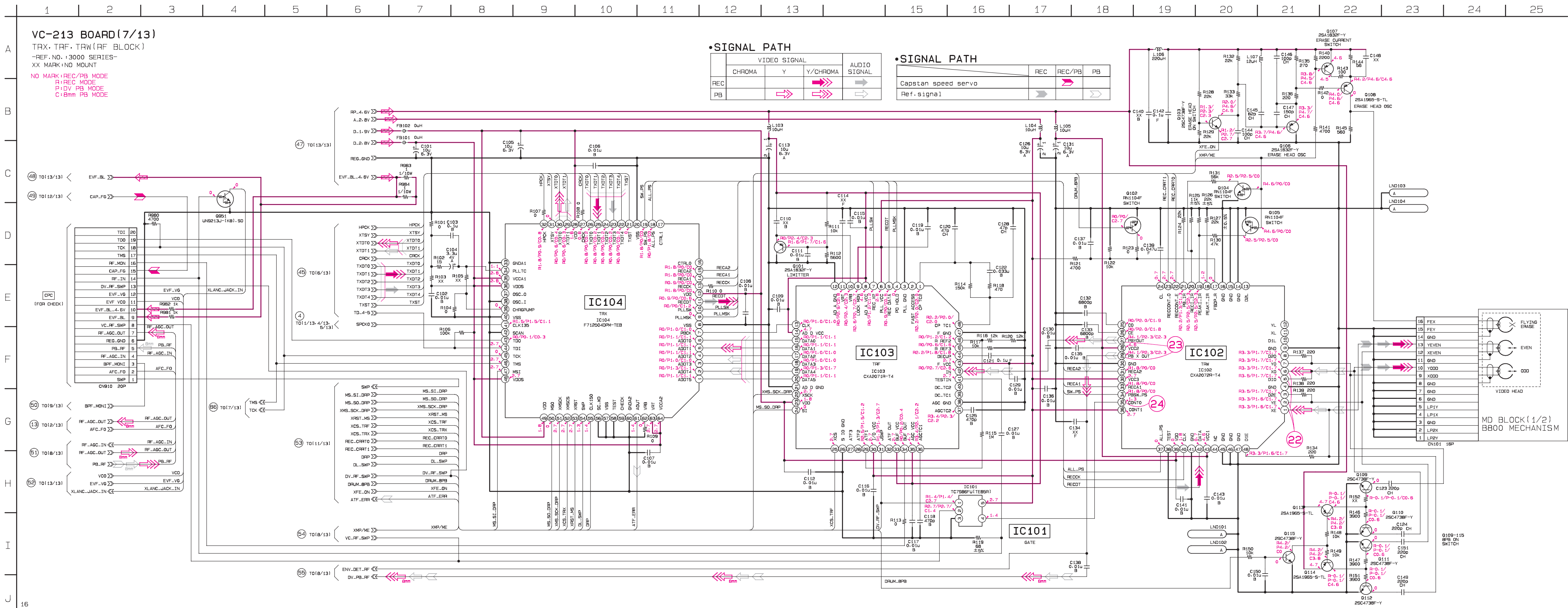
②① IC301 ⑭ (R315)

24.58MHz

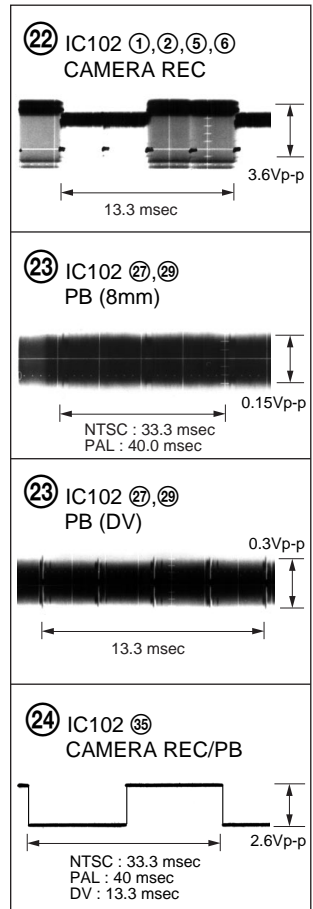
2.6Vp-p



For schematic diagram
• Refer to page 4-65 for printed wiring board.

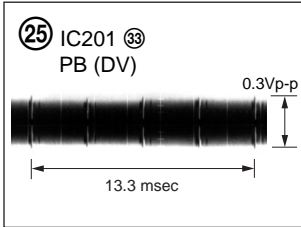


VC-213 BOARD (7/13)



For schematic diagram
• Refer to page 4-65 for printed wiring board.

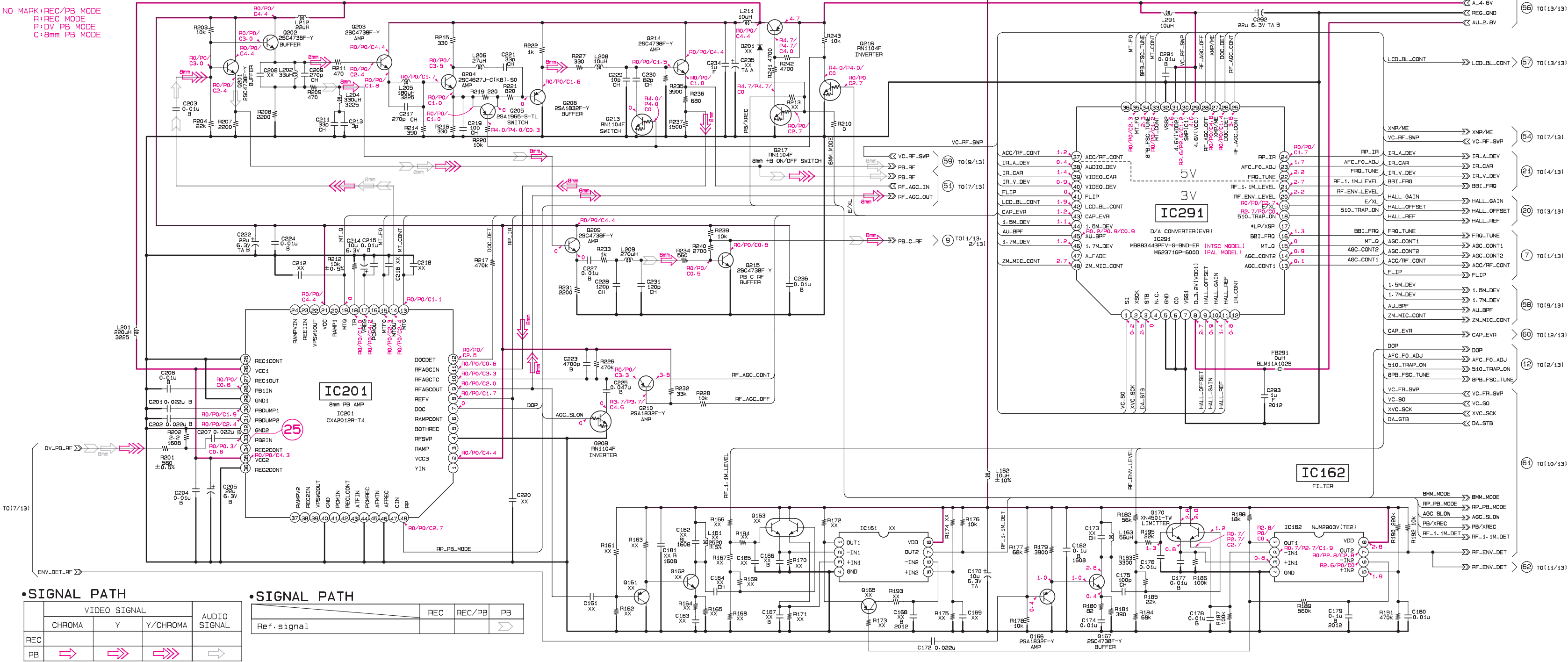
VC-213 BOARD (8/13)



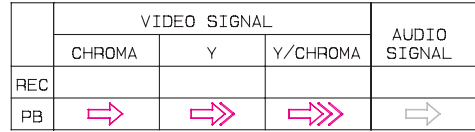
VC-213 BOARD (8/13)

8MM PB RF AMP, D/A CONVERTER (RR, EVR, HB BLOCK)
-REF. NO.: 3000 SERIES-
XX MARK: NO MOUNT

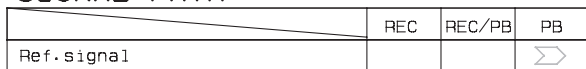
NO MARK: REC/PB MODE
R: REC MODE
P: DV PB MODE
C: 8mm PB MODE



•SIGNAL PATH

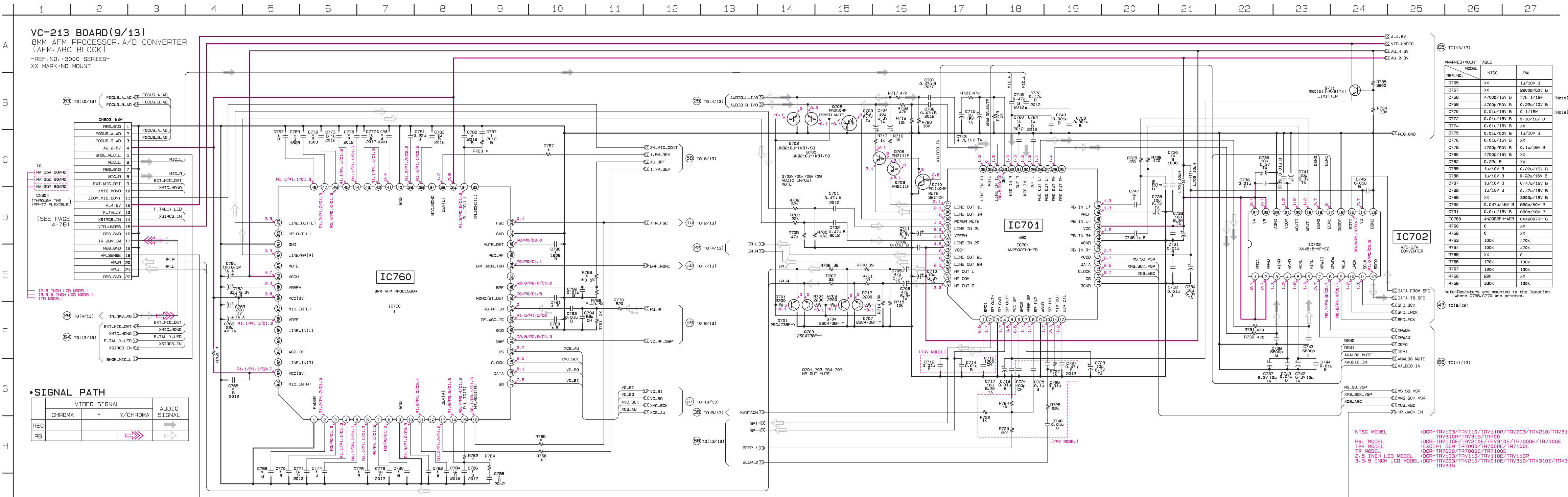


•SIGNAL PATH



For schematic diagram

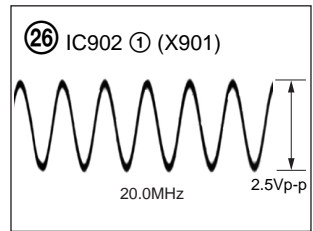
- Refer to page 4-65 for printed wiring board.



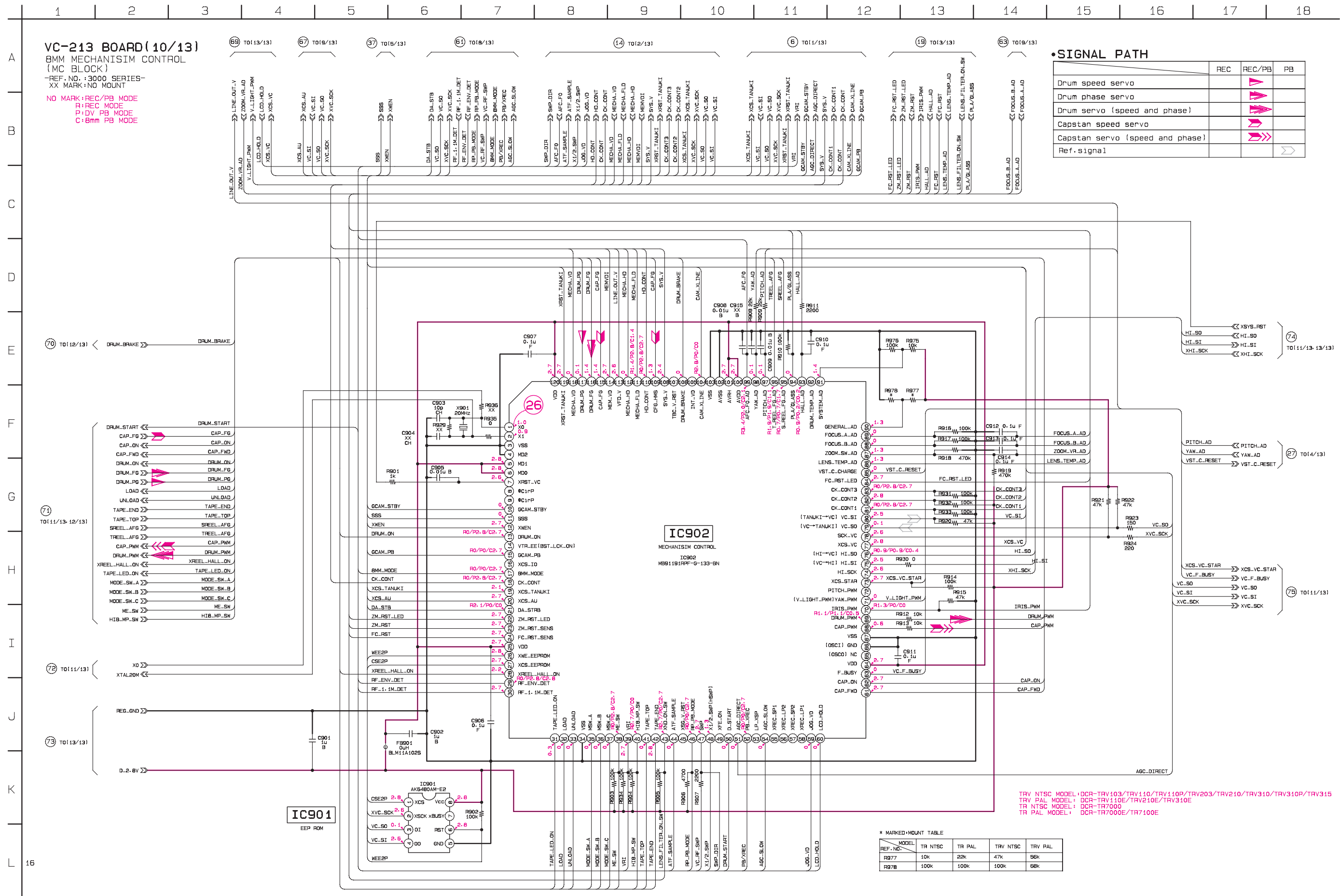
DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/
TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TR7000/TR7000E/TR7100E

For schematic diagram
• Refer to page 4-65 for printed wiring board.

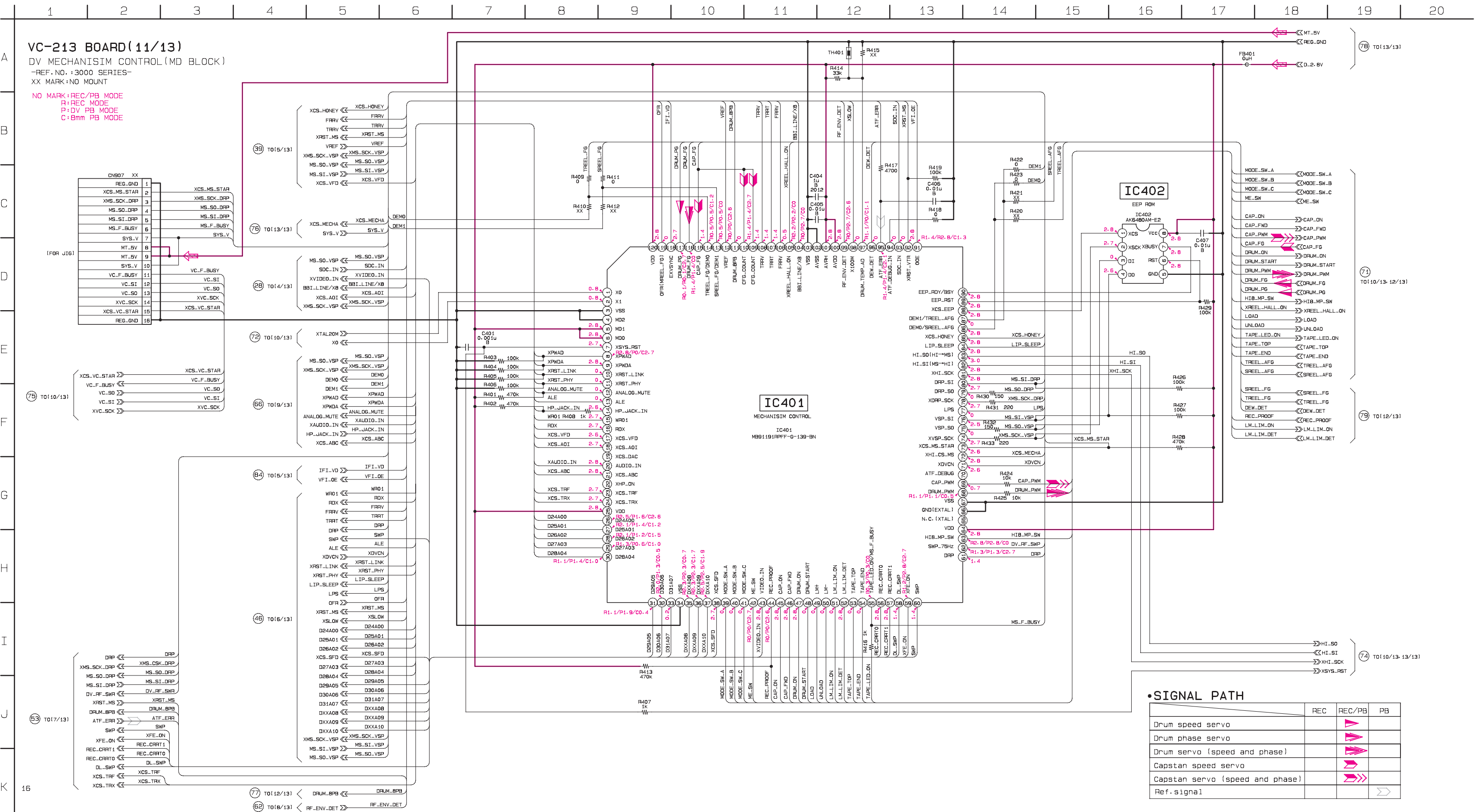
VC-213 BOARD (10/13)
CAMERA REC/PB



VC-213 BOARD (10/13)
8MM MECHANISM CONTROL
(MC BLOCK)
-REF.NO. 13000 SERIES-
XX MARK/NO MOUNT
NO MARK: REC/PB MODE
R: REC MODE
P: DV PB MODE
C: 8mm PB MODE



For schematic diagram
• Refer to page 4-65 for printed wiring board.

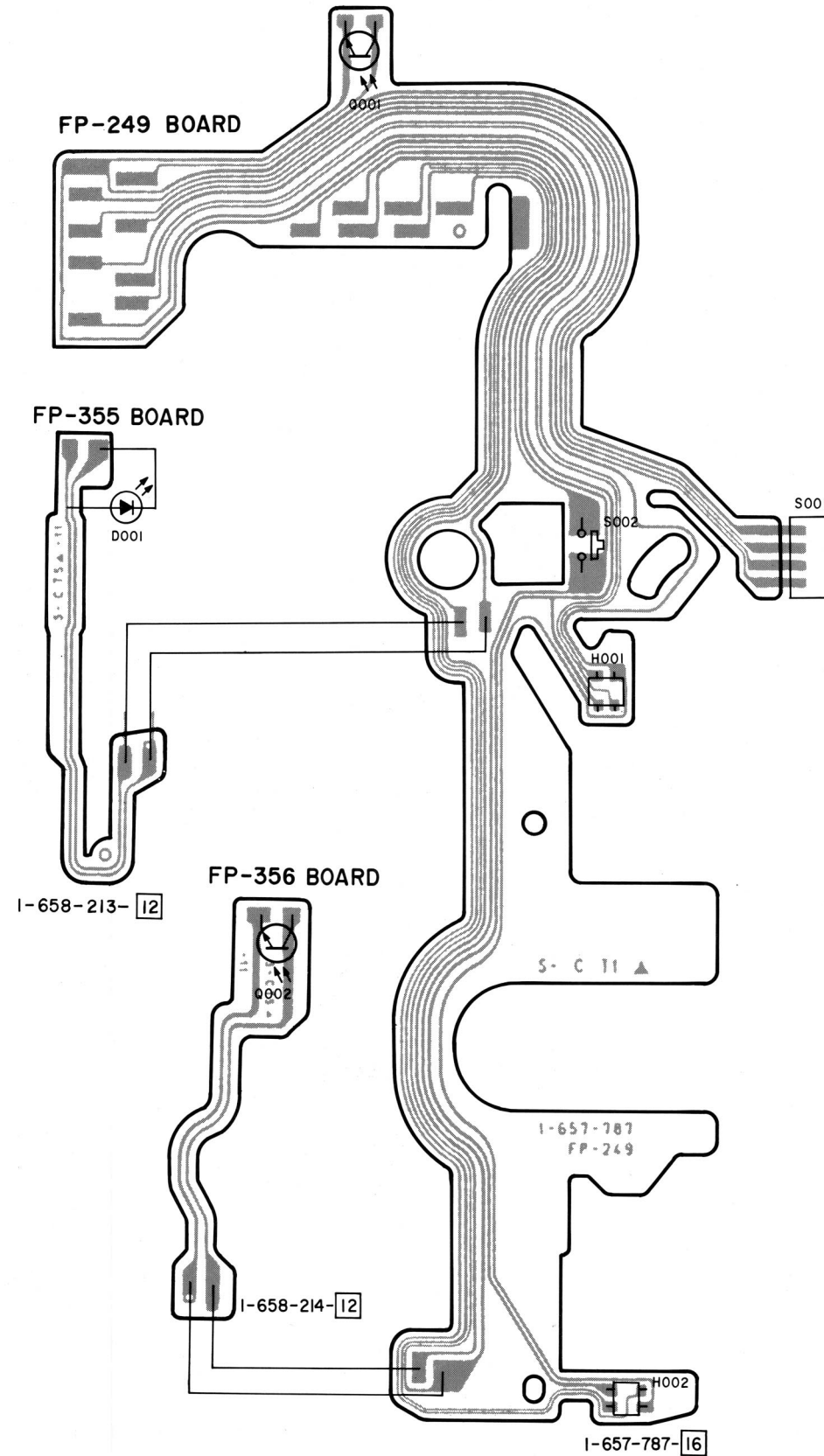


•SIGNAL PATH

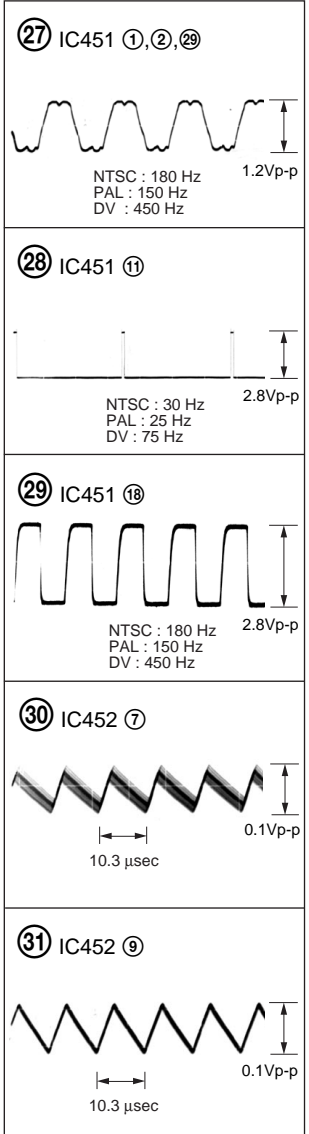
	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶	
Drum servo (speed and phase)		▶	
Capstan speed servo		▶	
Capstan servo (speed and phase)		▶	
Ref. signal			⊃

DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/
TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TR7000/TR7000E/TR7100E

FP-249 (S/T REEL SENSOR), FP-356 (TOP SENSOR), FP-355 (TAPE LED) FLEXIBLE BOARD
— Ref. No. FP-249, 356, 355 FLEXIBLE board; 20,000 series —

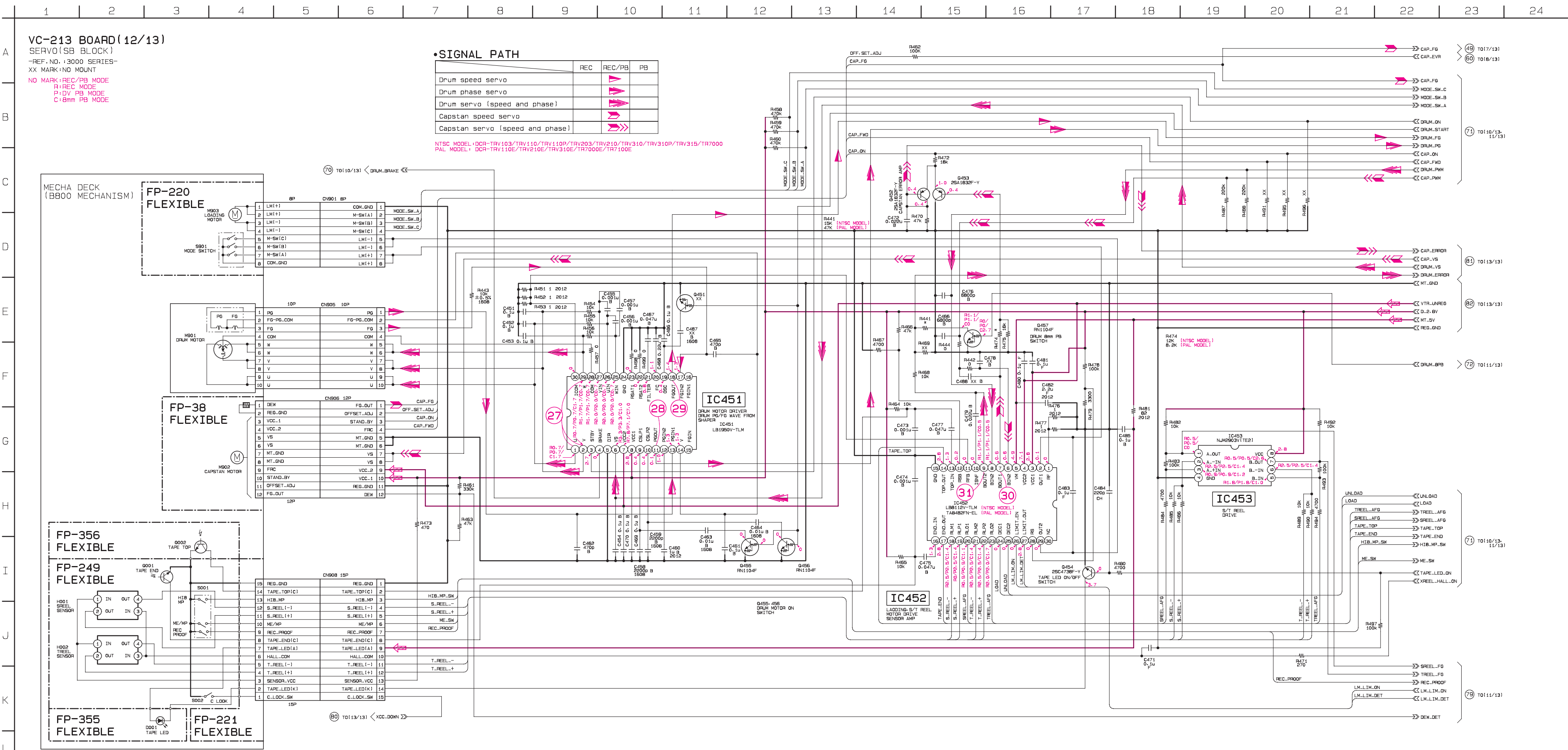


VC-213 BOARD (12/13)
CAMERA REC/PB



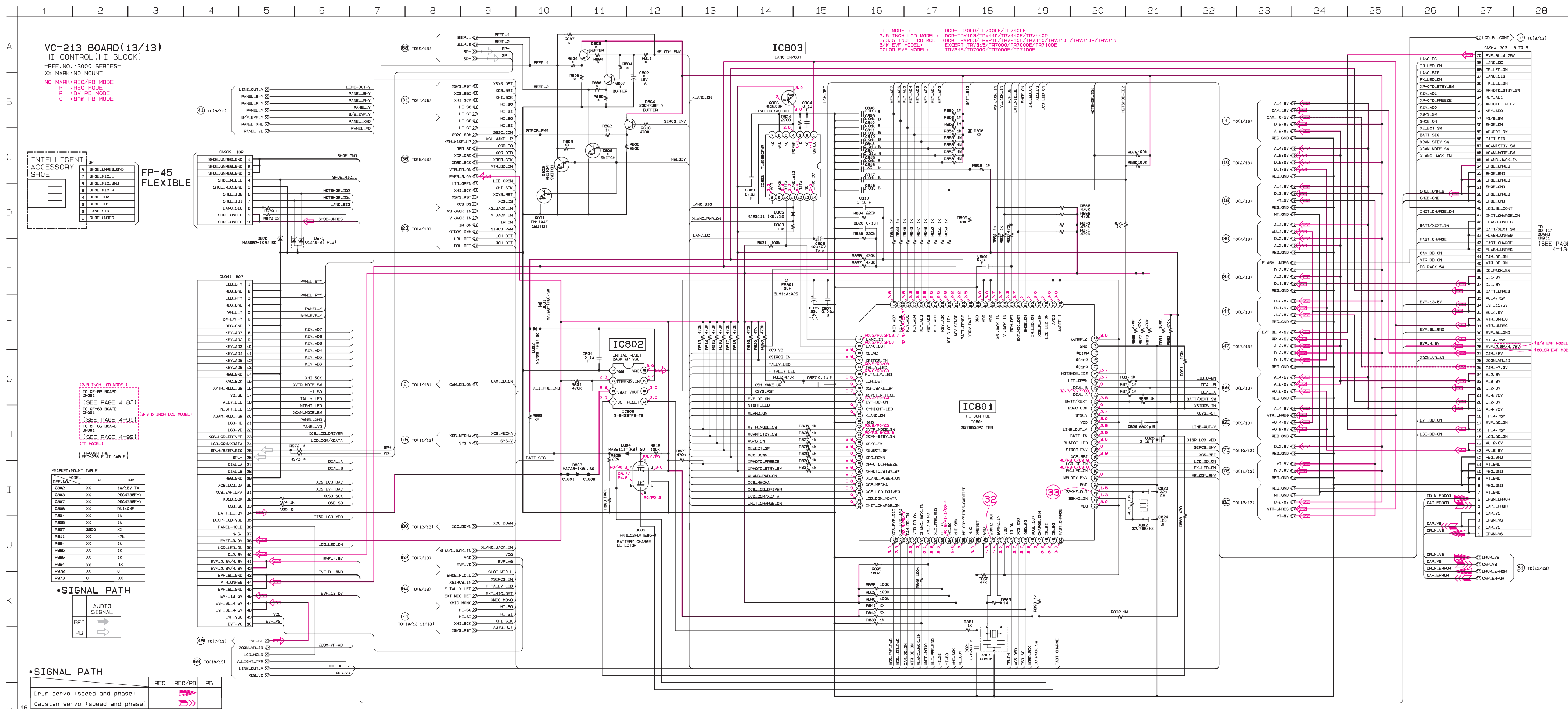
For schematic diagram

- Refer to page 4-65 for printed wiring board.



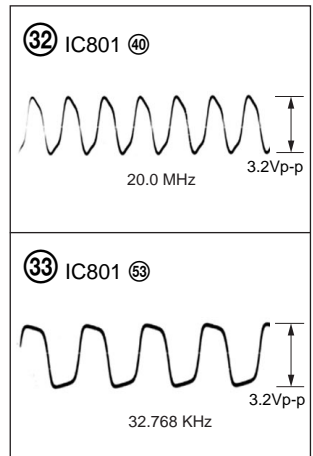
For schematic diagram

- Refer to page 4-65 for printed wiring board.



VC-213 BOARD (13/13)

CAMERA REC/PB



TO
DD-117
BOARD
CNR31
(SEE PAGE
4-134)

HI CONTROL
VC-213 (13/13)

DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/
TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TR7000/TR7000E/TR7100E

VC-213 BOARD (SIDE A)

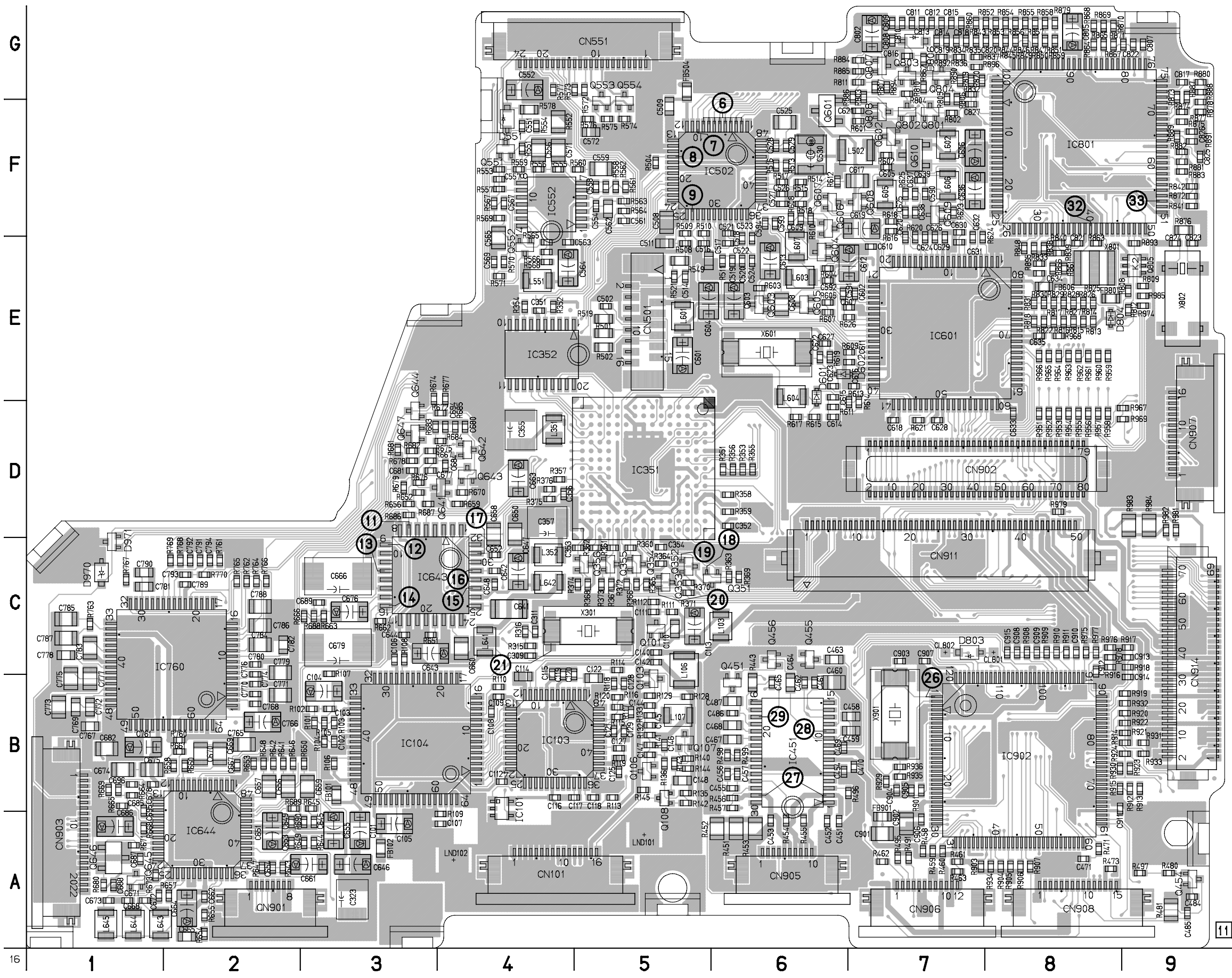
C101	A-3	C552	G-4	C674	B-1	CN101	A-4	Q605	E-6	R458	A-7	R645	B-3	R838	F-8
C102	B-3	C553	F-5	C675	B-2	CN102	E-5	Q606	F-6	R459	A-7	R646	B-2	R840	F-8
C103	B-3	C556	F-4	C676	C-3	CN551	G-5	Q607	F-6	R460	A-7	R647	A-2	R841	F-9
C104	B-3	C557	F-4	C677	D-3	CN807	D-9	Q608	F-7	R461	A-7	R648	B-2	R842	F-9
C105	A-3	C558	F-5	C678	B-1	CN901	A-2	Q609	F-7	R463	A-7	R649	A-3	R843	G-7
C106	C-3	C559	F-5	C679	C-3	CN902	D-7	Q610	F-7	R471	A-8	R650	B-3	R844	G-7
C107	A-4	C561	F-5	C681	D-3	CN903	A-1	Q641	D-4	R473	A-8	R651	C-3	R845	G-8
C108	B-4	C562	F-5	C682	B-1	CN906	A-7	Q642	D-4	R480	A-9	R652	D-3	R846	G-8
C109	B-4	C563	F-4	C684	D-4	CN908	A-8	Q643	D-4	R481	A-9	R653	B-2	R847	G-8
C110	C-5	C564	E-4	C685	B-1	CN911	C-7	Q644	D-3	R482	A-7	R654	A-2	R848	F-8
C111	C-5	C565	F-4	C686	A-1	CN914	B-9	Q645	A-1	R491	A-7	R655	A-2	R849	G-8
C112	B-4	C567	F-4	C687	A-1			Q646	A-1	R495	A-7	R656	D-3	R850	G-8
C113	C-5	C569	F-4	C688	A-1	D551	G-4	Q647	D-3	R496	B-6	R658	B-2	R851	G-8
C114	B-4	C571	F-4	C689	C-3	D601	E-6	Q801	G-7	R497	A-9	R659	D-4	R852	G-7
C115	B-4	C572	F-5	C691	E-6	D602	E-6	Q802	G-7	R498	B-6	R660	B-2	R853	G-8
C116	B-4	C590	F-7	C692	E-6	D803	C-7	Q803	C-7	R499	B-6	R661	B-2	R854	G-8
C117	B-4	C593	F-6	C695	B-1	D804	E-8	Q804	G-7	R501	E-5	R662	C-3	R855	G-8
C118	B-5	C594	F-6	C696	B-1	D806	G-7	Q805	E-9	R502	E-5	R663	C-3	R856	G-8
C119	B-4	C601	E-5	C761	C-2	D970	C-1	Q807	G-7	R504	F-5	R665	B-1	R857	G-8
C120	B-4	C602	E-7	C765	B-2	D971	C-1	Q808	G-7	R508	F-5	R666	C-3	R858	G-8
C121	B-5	C603	E-6	C766	B-2					R509	F-5	R667	D-3	R859	G-8
C122	B-5	C604	E-5	C767	B-1	FB101	B-3	R101	B-3	R511	F-6	R668	C-3	R860	G-7
C123	B-5	C605	F-7	C768	B-2	FB102	A-3	R102	B-3	R513	F-6	R669	B-1	R861	E-8
C126	B-5	C607	E-6	C769	B-1	FB606	E-8	R103	B-3	R514	F-6	R670	D-4	R862	G-7
C127	B-5	C608	E-6	C770	B-2	FB801	E-8	R104	B-3	R515	F-6	R671	A*1	R863	F-8
C129	B-5	C609	F-6	C771	B-2	FB901	A-7	R105	B-3	R516	F-6	R672	D-4	R864	G-8
C140	C-5	C610	F-7	C772	B-1			R106	B-3	R517	F-6	R673	A-1	R865	G-8
C142	C-5	C611	E-6	C773	B-1	IC101	B-4	R107	C-3	R518	F-6	R675	D-3	R866	E-8
C144	B-5	C612	F-7	C774	B-2	IC103	B-4	R108	C-3	R519	E-5	R676	D-3	R867	D-9
C145	B-5	C613	F-6	C775	B-1	IC104	B-3	R110	B-4	R521	E-5	R678	D-3	R868	G-8
C146	B-5	C614	D-6	C776	C-2	IC351	D-5	R111	C-5	R549	F-5	R679	D-3	R869	D-9
C147	E-6	C615	E-6	C777	B-1	IC352	E-4	R112	C-5	R551	F-4	R680	A-1	R870	G-8
C148	B-5	C616	E-7	C778	C-1	IC451	B-6	R113	B*5	R552	G-4	R681	D-3	R871	F-9
C309	C-4	C617	F-7	C779	C-2	IC502	F-6	R114	C-5	R553	F-4	R682	D-3	R872	F-9
C311	C-4	C618	D-7	C780	C-2	IC552	F-4	R115	B-5	R554	G-4	R683	D-4	R873	G-9
C323	A-3	C619	F-7	C781	C-1	IC601	E-7	R116	B-5	R555	F-4	R684	D-4	R874	G-9
C351	E-4	C620	F-7	C782	C-2	IC643	C-3	R117	B-5	R556	F-4	R686	D-3	R875	G-9
C352	D-6	C621	G-7	C783	C-1	IC644	A-2	R118	B-5	R557	F-4	R687	D-3	R876	F-9
C353	C-5	C622	E-6	C784	C-2	IC760	C-2	R119	B-5	R558	F-5	R688	A-1	R878	G-9
C354	C-5	C623	E-6	C785	C-1	IC801	F-8	R120	B-5	R559	F-4	R689	B-2	R879	G-8
C355	D-4	C624	F-7	C786	C-2	IC902	B-8	R128	B-5	R560	F-5	R690	A-3	R880	G-9
C356	D-4	C625	F-7	C787	C-1			R129	B-5	R561	F-5	R760	B-2	R881	F-9
C357	D-4	C626	F-7	C788	C-2	L103	C-6	R132	B-5	R562	F-5	R762	C-2	R882	F-9
C451	A-6	C627	E-6	C789	C-2	L106	C-5	R133	B-5	R563	F-5	R763	C-1	R883	F-9
C452	A-6	C628	D-7	C790	C-1	L107	B-5	R135	B-5	R564	F-5	R764	C-2	R884	G-7
C453	A-6	C629	F-7	C791	C-2	L131	D-4	R136	B-5	R565	F-4	R765	C-2	R885	G-7
C454	B-6	C630	F-7	C792	C-2	L352	C-4	R140	B-5	R566	F-4	R766	C-2	R886	G-7
C455	B-6	C631	F-7	C793	C-2	L502	F-7	R141	B-5	R567	F-4	R767	C-1	R887	G-9
C456	B-6	C632	F-7	C794	C-2	L551	E-4	R142	B-5	R568	F-4	R768	C-2	R888	G-9
C457	B-6	C633	D-8	C802	G-7	L601	E-5	R143	B-5	R569	F-4	R769	C-2	R889	F-9
C458	B-7	C634	E-8	C805	G-8	L602	F-7	R144	B-5	R570	F-4	R770	C-2	R890	G-7
C459	B-7	C635	E-8	C806	G-7	L603	E-6	R145	B-5	R571	E-4	R802	G-7	R891	F-9
C460	B-6	C636	F-7	C807	G-9	L604	E-6	R315	C-4	R572	G-5	R803	G-7	R892	G-7
C461	B-6	C637	F-7	C809	G-7	L605	F-7	R316	C-4	R573	G-4	R804	G-7	R893	F-9
C462	B-6	C639	F-7	C810	G-7	L606	F-7	R351	D-6	R574	G-5	R805	G-7	R894	F-9
C464	B-6	C641	C-4	C811	G-7	L607	F-6	R352	E-4	R575	G-5	R806	G-7	R895	F-8
C465	B-6	C642	C-4	C812	G-7	L641	C-4	R353	D-6	R576	G-5	R807	G-7	R896	G-7
C467	B-6	C643	C-3	C813	G-7	L642	C-4	R354	E-4	R577	G-4	R808	E-9	R901	B-7
C468	B-6	C644	C-3	C814	G-7	L643	A-1	R355	D-6	R601	G-7	R809	E-9	R903	A-7
C469	B-6	C645	A-3	C815	G-7	L644	A-1	R356	D-6	R602	F-7	R810	G-7	R904	A-8
C471	A-8	C646	A-3	C816	G-7	L645	A-1	R357	D-4	R603	C-6	R811	G-7	R905	A-8
C484	A-9	C648	C-4	C818	G-7			R358	D-6	R604	E-6	R812	E-9	R906	A-8
C485	A-9	C649	A-2	C819	G-7			R359	D-6	R605	E-6	R813	E-8	R907	A-8
C486	B-6	C650	D-4	C820	G-7			R360	C-5	R607	E-6	R814	E-8	R908	C-8
C487	B-6	C651	A-2	C822	G-9			R361	C-5	R608	F-6	R815	E-8	R909	C-8
C502	F-5	C652	C-4	C823	F-9			R362	C-5	R609	E-6	R816	E-8	R910	C-8
C508	F-5	C653	A-2	C825	F-9			R363	C-6	R610	F-6	R817	E-8	R911	C-8
C509	G-5	C654	A-2	C826	F-9			R364	C-6	R611	D-6	R818	E-8	R912	B-8
C511	F-5	C655	A-3	C827	G-7			R365	C-5	R612	F-6	R819	G-7	R913	B-9
C514	E-5	C656	B-2	C901	A-7			R367	C-5	R613	D-7	R820	G-7	R915	B-8
C517	F-5	C657	B-2	C902	A-7			R368	C-5	R614	D-7	R821	F-8	R916	C-8
C518	F-6	C658	D-4	C903	C-7			R369	C-6	R615	D-6	R822	E-8	R917	C-8
C519	F-6	C659	B-3	C904	B-7			R370	C-5	R616	F-7	R824	F-9	R918	C-9
C520	F-6	C660	C-4	C905	B-7			R371	C-5	R617	D-6	R825	E-8	R919	B-9
C521	F-6	C661	A-3	C906	A-9			R373	C-5	R618	F-7	R826	E-8	R920	B-9
C522	F-6	C662	A-2	C907	C-7			R374	C-5	R619	E-8	R827	E-9	R921	B-9
C523	F-6	C665	A-2	C908	C-8			R375	D-4	R620	F-7	R828	E-8	R922	B-9
C524	F-6	C666	C-3	C909	C-8			R376	D-4	R621	D-7	R829	E-8	R923	B-9
C525	G-6	C667	B-2	C910	C-8			R443	B-6	R623	F-7	R830	E-8	R924	B-9
C526	F-6	C668	A-1	C911	B-8			R443	B-6	R624	F-7	R831	E-8	R929	B-7
C527	F-6	C669	B-2	C912	C-8			R451	A-6	R625	F-7	R832	G-7	R930	B-8
C528	F-6	C670	B-2	C913	C-9			R452	A-6	R626	E-6	R833	F-8	R931	B-9
C529	F-6	C671	A-1	C914	B-9			R453	A-6	R627	E-6	R834	G-7	R932	B-9
C530	F-6	C672	A-1	C915	C-8			R454	A-6	R641	B-2	R835	G-7	R933	B-9
C551	G-4	C673	A-1					R455	A-6	R642	B-2	R836	G-7	R934	A-8
								R456	B-6	R643	A-2	R837	G-7	R935	B-7
								R457	B-6	R644	A-3				

CAMERA PROCESSOR, Y/C PROCESSOR, BBI, LENS DRIVE, VFD, SFD, TRF, 8MM PROCESSOR, DV/8MM MECHA CONTROL, HI CONTROL
VC-213

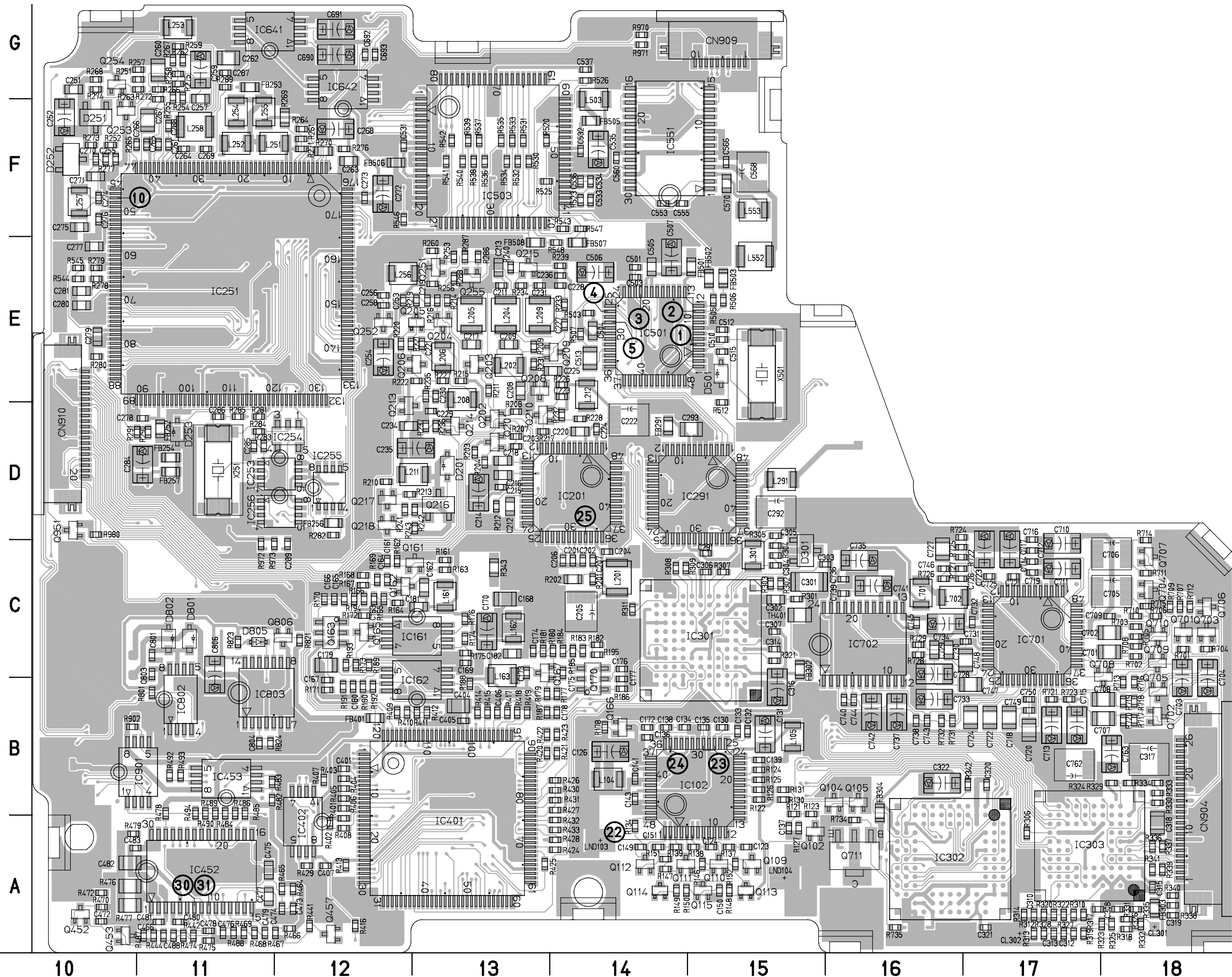
VC-213 (CAMERA PROCESSOR, Y/C PROCESSOR, LENS MOTOR DRIVE, IN/OUT SELECT, IR TRANSMITTER, BASE BAND INPUT, VFD, SFD, TFD, LIP, TRX, TRW, 8MM PB RF AMP, D/A CONVERTER, 8MM AFM PROCESSOR, 8MM MECHANISM CONTROL, DV MECHANISM CONTROL, SERVO, HI CONTROL) PRINTED WIRING BOARD

— Ref. No. VC-213 Board; 3,000 Series —

VC-213 BOARD (SIDE A)



VC-213 BOARD (SIDE B)



VC-213 BOARD (SIDE B)

C101	C-13	C267	G-11	C691	G-12	FB505	G-14	O208	E-13	R203	D-13	R323	A-18	R525	F-13
C123	A-15	C268	F-12	C692	G-12	FB506	F-14	O209	E-14	R204	D-13	R324	B-18	R526	G-14
C124	A-15	C269	F-11	C693	G-12	FB507	F-12	O210	D-13	R207	D-13	R325	A-18	R530	F-13
C126	B-14	C270	F-10	C701	C-18	FB508	F-14	O213	D-12	R208	D-13	R326	A-18	R531	F-13
C130	B-15	C271	F-10	C702	C-18			O214	D-13	R209	E-13	R327	A-17	R532	F-13
C131	B-15	C272	F-12	C703	C-18	IC102	B-15	O215	E-13	R210	D-12	R328	A-17	R533	F-13
C132	B-15	C273	F-12	C704	C-18	IC161	C-13	O216	D-13	R211	E-13	R329	B-18	R534	F-13
C133	B-15	C274	F-10	C705	C-18	IC164	B-13	O217	D-12	R212	D-13	R330	B-18	R535	F-13
C134	B-14	C275	F-10	C706	C-18	IC201	D-14	O218	D-12	R213	D-12	R331	A-18	R537	F-13
C135	B-15	C276	F-10	C707	B-18	IC251	E-11	O251	E-13	R214	E-13	R332	A-18	R538	F-13
C136	B-14	C277	F-10	C708	B-18	IC253	D-12	O252	E-12	R215	E-13	R333	B-18	R539	F-13
C137	A-15	C278	D-11	C709	C-18	IC254	D-12	O253	G-10	R216	E-13	R334	B-18	R540	F-13
C138	B-14	C279	E-10	C710	C-17	IC255	D-12	O254	G-10	R217	D-13	R335	A-18	R541	F-13
C139	B-15	C280	E-10	C711	C-17	IC256	D-12	O255	E-13	R219	E-13	R336	A-18	R542	F-13
C141	B-14	C281	E-10	C712	C-17	IC291	D-15	O452	A-10	R220	E-12	R337	A-18	R543	F-13
C142	B-14	C284	D-11	C713	B-17	IC301	C-15	O453	A-10	R221	E-13	R338	A-18	R544	E-10
C149	A-14	C285	D-11	C714	C-17	IC302	A-16	O457	A-12	R222	E-13	R339	A-18	R545	E-10
C150	A-15	C286	D-11	C715	B-17	IC303	A-17	O701	C-18	R226	E-14	R340	A-18	R546	F-12
C151	A-14	C288	G-12	C716	C-17	IC401	A-13	O702	B-18	R227	E-13	R341	A-18	R547	F-14
C161	C-12	C289	C-12	C717	C-17	IC402	A-12	O703	C-18	R228	D-14	R343	C-13	R548	F-14
C162	C-13	C291	C-15	C718	B-17	IC452	A-11	O704	C-18	R231	E-13	R401	A-12	R624	B-11
C163	C-12	C292	D-15	C719	C-17	IC453	B-11	O705	B-18	R232	D-14	R403	B-12	R642	C-17
C164	C-12	C293	D-15	C720	B-17	IC501	E-14	O706	C-18	R233	E-14	R404	B-12	R701	C-18
C165	C-12	C301	C-15	C721	C-17	IC503	F-13	O707	C-18	R234	E-13	R405	B-12	R702	C-18
C166	C-12	C302	C-15	C722	B-17	IC551	F-15	O708	B-18	R235	E-13	R406	B-12	R703	C-18
C167	B-12	C303	C-15	C723	C-17	IC641	G-11	O709	C-18	R236	D-13	R407	B-12	R704	C-18
C168	C-13	C304	C-15	C724	B-17	IC642	G-12	O710	C-18	R237	D-13	R408	A-12	R705	C-18
C169	C-13	C305	D-15	C725	C-17	IC701	C-17	O711	A-16	R239	E-14	R409	B-12	R706	C-18
C170	C-13	C306	C-15	C726	C-17	IC702	C-16	O806	C-12	R240	E-13	R410	B-12	R707	C-18
C172	B-14	C307	C-15	C727	C-16	IC802	B-11	O951	D-10	R241	D-12	R411	B-13	R708	C-18
C173	C-13	C308	A-17	C728	C-16	IC803	B-11			R242	D-13	R412	B-13	R709	C-18
C174	C-13	C310	A-17	C729	C-16	IC901	B-11			R243	D-13	R413	A-12	R710	C-18
C175	C-14	C312	A-17	C730	C-16			R122	B-15	R252	F-10	R414	B-13	R711	C-18
C176	C-14	C313	A-17	C731	C-17	L104	B-14	R123	A-15	R253	F-13	R415	B-13	R712	C-18
C177	B-14	C314	C-15	C732	C-17	L105	B-15	R124	B-15	R254	G-11	R416	A-12	R713	B-18
C179	C-12	C315	A-18	C733	B-16	L161	C-13	R125	B-15	R255	G-11	R417	B-13	R714	C-18
C180	B-12	C316	B-15	C734	C-16	L162	C-13	R126	B-15	R256	E-13	R418	B-13	R715	C-18
C182	C-13	C317	B-18	C735	C-16	L163	C-13	R127	A-15	R258	G-11	R419	B-13	R716	B-18
C201	C-14	C318	A-18	C736	C-16	L201	C-14	R130	B-15	R259	G-11	R420	B-13	R717	B-18
C202	C-14	C319	A-18	C737	B-16	L202	E-13	R131	B-15	R260	F-13	R421	B-14	R718	B-18
C203	D-13	C321	A-17	C738	B-16	L204	E-13	R134	A-14	R262	G-11	R422	B-13	R719	B-18
C204	C-14	C322	B-16	C739	C-16	L205	E-13	R137	A-15	R264	F-12	R423	B-14	R720	B-18
C205	C-14	C401	B-12	C740	B-16	L206	E-13	R138	A-15	R265	F-11	R424	A-14	R721	C-17
C206	C-14	C404	B-13	C741	C-16	L208	D-13	R139	A-14	R266	G-11	R425	A-13	R722	C-16
C207	C-14	C405	B-13	C742	B-16	L209	E-13	R146	A-15	R267	G-11	R426	B-14	R723	B-17
C208	E-13	C406	B-13	C743	B-16	L211	D-13	R147	A-14	R269	G-12	R428	A-14	R724	C-16
C209	E-13	C407	A-12	C744	B-16	L212	E-14	R149	A-14	R270	F-12	R429	A-12	R725	C-16
C211	E-13	C472	A-10	C745	C-16	L251	F-12	R150	A-15	R271	F-12	R430	B-14	R726	C-16
C212	D-13	C473	A-12	C746	C-16	L252	F-11	R151	A-14	R272	G-11	R431	B-14	R727	C-16
C213	E-13	C474	A-12	C747	C-17	L253	G-11	R152	A-15	R273	F-10	R432	A-14	R728	C-16
C214	D-13	C475	A-11	C748	C-17	L254	G-11	R161	C-13	R275	G-11	R433	A-14	R729	C-16
C215	D-13	C476	A-11	C749	B-17	L255	G-11	R162	C-12	R276	F-12	R441	A-12	R731	B-16
C216	D-13	C477	A-11	C750	C-17	L256	F-12	R163	C-13	R277	F-10	R442	A-11	R732	B-16
C217	E-13	C478	A-11	C762	B-17	L257	F-10	R164	C-12	R278	E-10	R444	A-11	R734	A-16
C218	D-13	C479	A-11	C763	B-18	L258	F-11	R165	C-12	R279	E-10	R464	A-12	R801	B-11
C219	E-13	C480	A-11	C801	C-11	L291	D-15	R166	C-12	R280	E-10	R465	A-12	R802	B-10
C220	D-14	C481	A-11	C803	C-11	L301	C-15	R167	C-12	R281	D-11	R466	A-12	R821	C-12
C221	E-13	C482	A-10	C816	B-11	L503	G-14	R168	C-12	R282	D-12	R467	A-12	R823	C-11
C222	D-14	C483	A-10			L552	F-15	R169	C-12	R283	D-11	R468	A-11	R970	G-14
C223	E-14	C488	A-11	CN804	A-18	L553	F-15	R170	C-12	R284	D-11	R469	A-11	R971	G-14
C225	E-14	C501	E-14	CN809	G-15	L701	C-16	R171	B-12	R285	D-11	R470	A-10	R972	C-11
C227	E-14	C503	E-14	CN910	D-10	L702	C-16	R172	C-12	R286	F-13	R472	A-10	R973	C-12
C228	E-14	C504	E-14					R173	C-12	R287	F-13	R474	A-11	R980	D-10
C229	D-13	C505	E-14	D201	D-13	Q102	A-15	R174	C-13	R288	E-13	R475	A-11		
C230	E-13	C506	E-14	D251	G-10	Q104	B-16	R175	C-13	R289	G-11	R476	A-10	TH401	C-15
C231	E-13	C507	F-14	D252	F-10	Q105	B-16	R176	C-13	R290	D-11	R477	A-10		
C234	D-12	C510	E-15	D253	D-11	Q109	A-15	R177	B-14	R291	D-11	R478	B-11	X251	D-11
C235	D-13	C512	E-15	D301	C-15	Q110	A-15	R178	B-14	R301	C-15	R479	A-10	X501	E-15
C236	E-14	C513	E-14	D501	E-15	Q111	A-14	R179	B-13	R302	C-15	R482	B-11		
C244	D-14	C515	E-15	D801	C-11	Q112	A-14	R180	C-14	R303	C-15	R483	B-11		
C251	G-10	C531	F-12	D802	C-11	Q113	A-15	R181	C-13	R304	C-15	R484	B-11		
C252	G-10	C532	F-14	D805	C-11	Q114	A-14	R182	C-14	R305	C-15	R486	B-11		
C253	E-12	C533	F-14			Q115	A-15	R183	C-14	R306	A-17	R487	A-11		
C254	E-12	C534	F-14	FB252	D-11	Q161	C-13	R184	C-14	R307	C-15	R488	A-11		
C255	F-10	C535	F-14	FB254	D-11	Q162	C-12	R185	C-14	R308	C-14	R489	B-11		
C256	E-12	C536	F-14	FB255	D-12	Q163	C-12	R186	B-14	R309	C-14	R490	B11		
C257	G-11	C537	G-14	FB257	D-11	Q165	C-12	R187	B-13	R310	A-17	R492	B-11		
C258	E-12	C553	F-14	FB258	G-11	Q166	B-14	R189	C-12	R311	C-14	R493	B-11		
C259	G-11	C555	F-15	FB291	D-14	Q167	C-13	R190	B-12	R312	A-17	R494	B-11		
C260	G-11	C560	F-14	FB302	C-15	Q170	B-14	R191	B-12	R313	A-17	R503	E-14		
C261	F-11	C566	F-15	FB303	A-18	Q201	D-13	R192	B-12	R314	A-17	R505	E-15		
C262	G-11	C568	F-15	FB304	A-16	Q202	D-13	R193	C-12	R318	A-18	R506	E-15		
C263	F-12	C570	F-15	FB401	B-12	Q203	E-13	R194	C-12	R319	A-17	R507	E-14		
C264	F-11	C604	B-11	FB501	E-15	Q204	E-13	R195	C-14	R320	A-17	R512	D-15		
C265	F-11	C620	C-17	FB502	E-15	Q205	E-13	R201	C-14	R321	C-15	R520	F-13		
C266	F-11	C690	G-12	FB503	E-15	Q206	E-13	R202	C-14	R322	A-17	R523	F-14		

SE-86/87/89 (STEADY SHOT), PJ-95/96/98 (AV IN/OUT) PRINTED WIRING BOARDS
— Ref. No. SE-86, PJ-95 Board; 7,000, SE-87, PJ-96 Board; 8,000, SE-89, PJ-98 Board; 9,000 Series —

SE-86/87/89 BOARD

- C601 B-5
C602 D-6
C603 C-2
C604 E-2
C605 C-3
C606 C-5
C607 C-6
C608 D-6
C609 C-6
C610 D-2
C611 C-6
C612 C-2
C613 D-6
C614 C-5
C615 D-5
C616 D-3

CN601 A-2
CN602 A-1

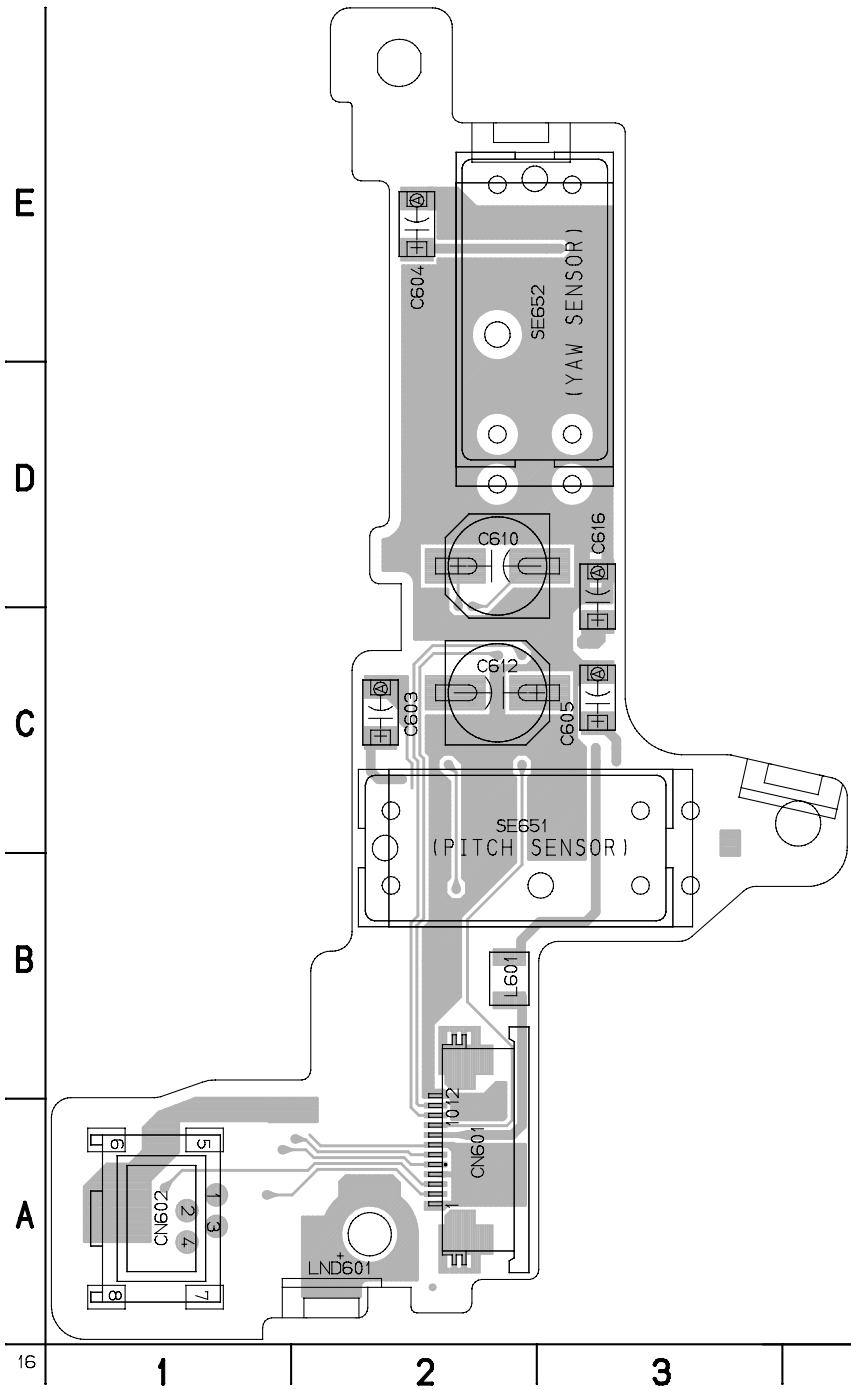
IC601 C-6

L601 B-2

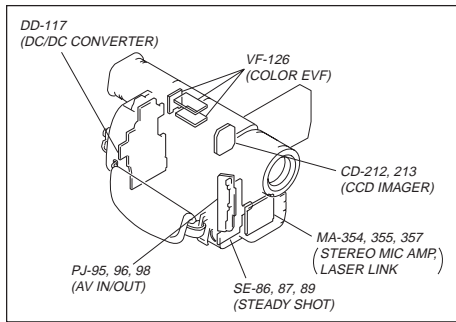
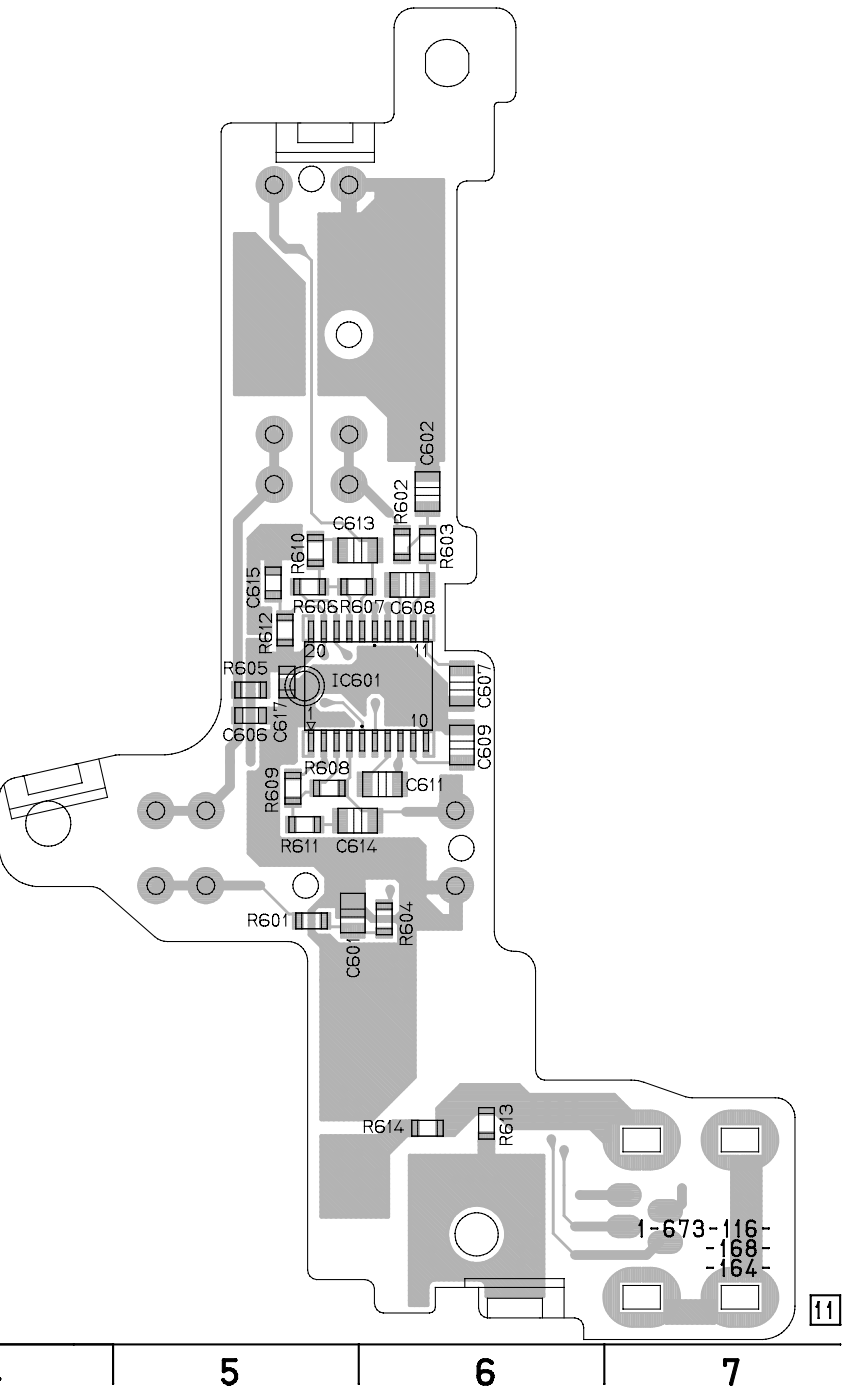
R601 B-5
R602 D-6
R603 D-6
R604 B-6
R605 C-5
R607 D-5
R608 D-5
R609 C-5
R610 D-5
R611 C-5
R612 C-5
R613 A-6
R614 A-6

SE651 B-2
SE652 E-2

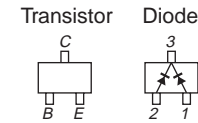
SE-86/87/89 BOARD (SIDE A)



SE-86/87/89 BOARD (SIDE B)



For printed wiring boards
• Chip parts



There are few cases that the part printed on this diagram isn't mounted in this model.

Note : This series use the three different types of printed wiring board as shown below.
DCR-TRV103/TRV110/TRV110E/TRV110P : SE-86 : 1-673-116-
DCR-TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315 : SE-87 : 1-673-168-
DCR-TR7000/TR7000E/TR7100E : SE-89 : 1-673-164-

PJ-95/96/98 BOARD

- C101 C-3
C102 D-3
C103 C-4
C104 C-4
C105 A-3
C106 C-3
C107 B-4
C108 A-3
C109 E-3
C110 E-3
C111 A-4
C112 B-3
C113 B-3

CN101 C-3

D101 A-3
D102 C-4
D103 C-4
D104 E-4
D105 E-4
D106 E-3
D107 E-4

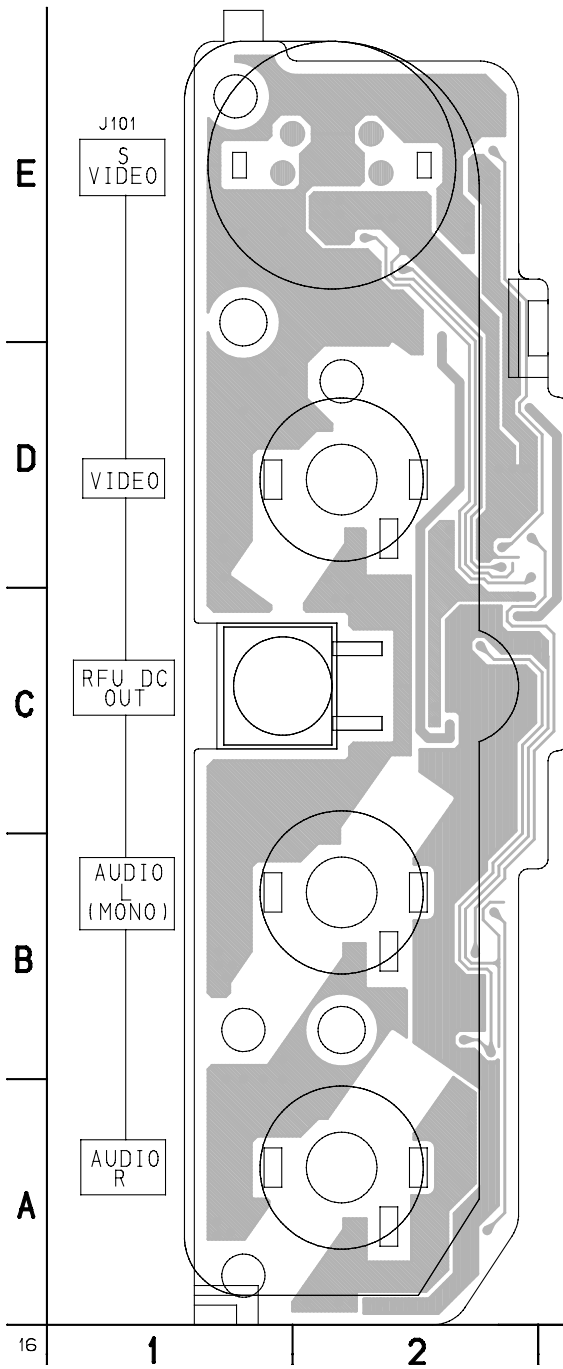
J001 E-1

L101 C-3
L102 C-4
L103 B-3
L104 A-4
L105 B-3

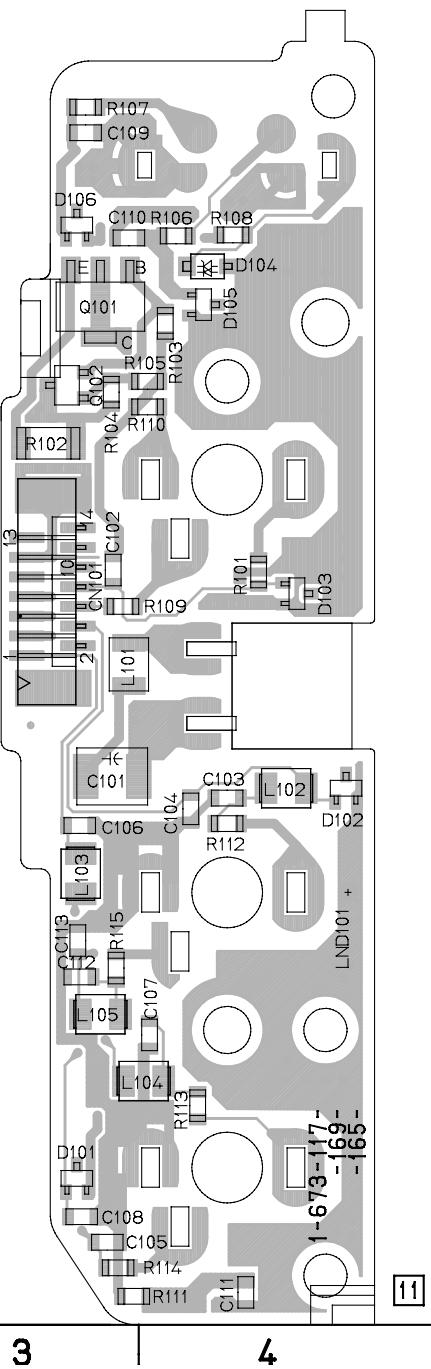
Q101 E-3
Q102 D-3

R101 D-4
R102 D-3
R103 E-4
R104 D-3
R105 D-4
R106 E-4
R107 E-3
R108 E-4
R109 C-3
R110 D-4
R111 A-3
R112 C-4
R113 A-4
R114 A-3
R115 B-3

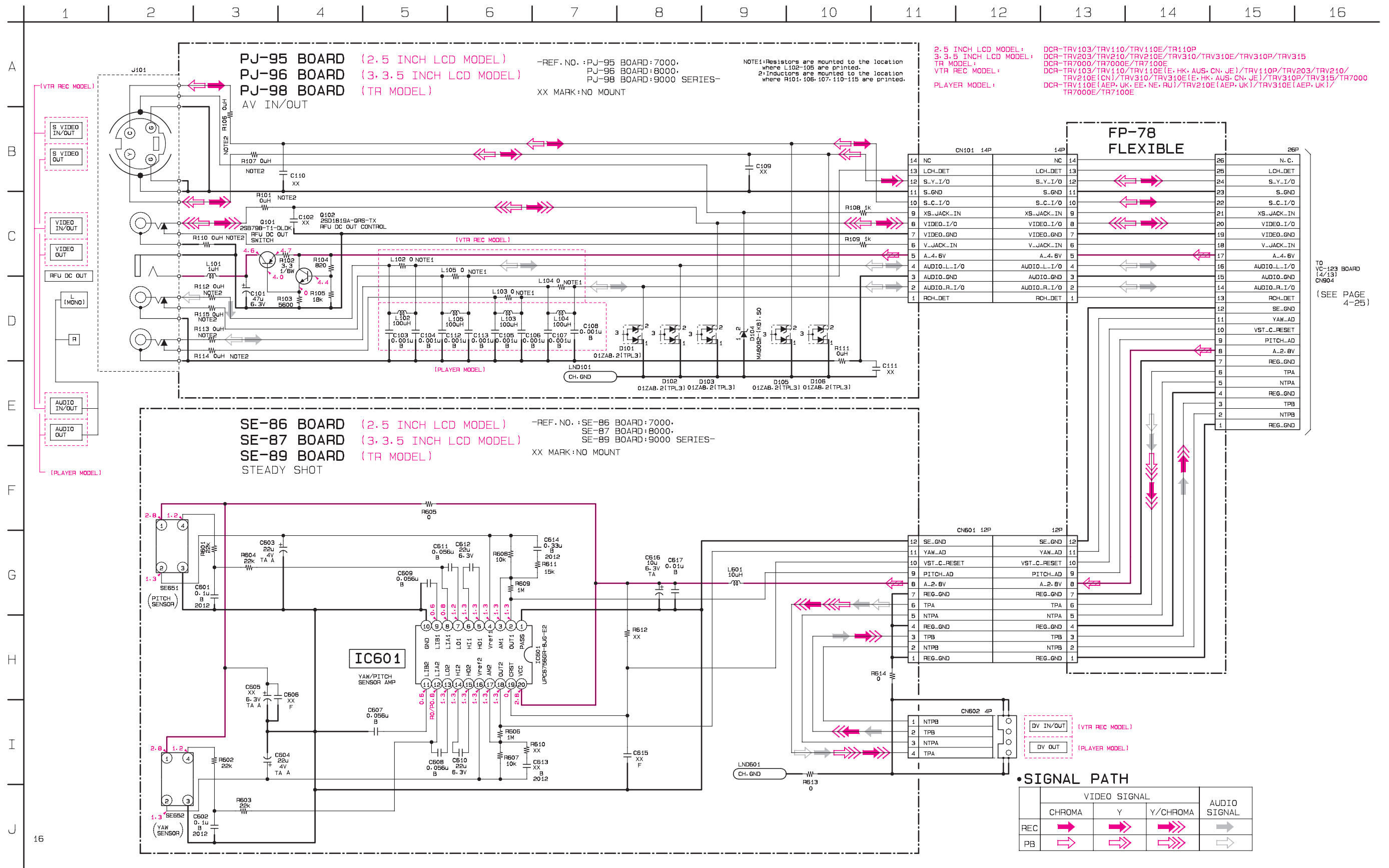
PJ-95/96/98 BOARD
(SIDE A)



PJ-95/96/98 BOARD
(SIDE B)



Note : This series use the three different types of printed wiring board as shown below.
DCR-TRV103/TRV110/TRV110E/TRV110P : PJ-95 : 1-673-117-
DCR-TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315 : PJ-96 : 1-673-169-
DCR-TR7000/TR7000E/TR7100E : PJ-98 : 1-673-165-



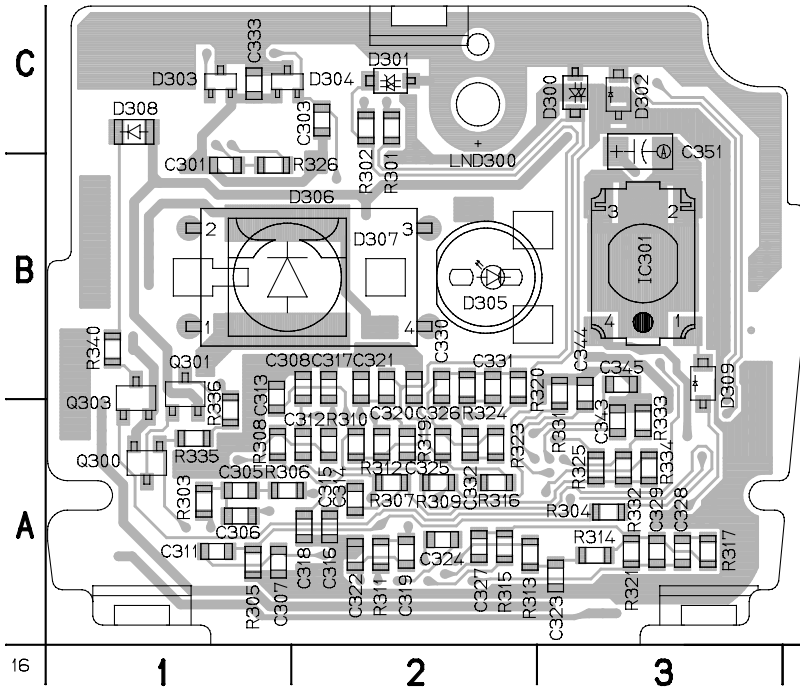
MA-354/355/357 BOARD

C300	B-7	F300	B-6
C301	B-1		
C302	B-7	IC300	A-5
C303	C-2	IC301	B-3
C304	B-4		
C305	A-1	L300	C-7
C306	A-1	L301	B-6
C307	A-1	L302	B-7
C308	B-2		
C309	A-6	Q300	A-1
C310	A-6	Q301	B-1
C311	A-1	Q302	B-6
C312	A-2	Q303	B-1
C313	B-1		
C314	A-2	R300	C-6
C315	A-2	R301	C-2
C316	A-2	R302	C-2
C317	B-2	R303	A-1
C318	A-2	R304	A-3
C319	A-2	R305	A-1
C320	B-2	R306	A-1
C321	B-2	R307	A-2
C322	A-2	R308	A-1
C323	A-3	R309	A-2
C324	A-2	R310	A-2
C325	A-2	R311	A-2
C326	B-2	R312	A-2
C327	A-2	R313	A-2
C328	A-3	R314	A-3
C329	A-3	R315	A-2
C330	B-2	R316	A-2
C331	B-2	R317	A-3
C332	A-2	R318	C-4
C333	C-1	R319	A-2
C343	A-3	R320	B-2
C344	B-3	R321	A-3
C345	B-3	R323	A-2
C346	B-5	R324	B-2
C347	B-5	R325	A-3
C348	B-5	R326	B-1
C349	B-5	R327	B-6
C350	B-6	R331	B-3
C351	C-3	R332	A-3
		R333	A-3
		R334	A-3
		R335	A-1
		R336	A-1
		R337	B-6
		R338	B-6
		R339	B-6
		R340	B-1
		R341	A-4
CN300	C-6		
CN301	C-4		
CN302	B-4		
CN303	A-7		
CN304	A-5		
D301	C-2		
D302	C-3		
D303	C-1		
D304	C-1		
D305	B-2		
D306	B-1		
D307	B-2		
D308	C-1		
D309	B-3		

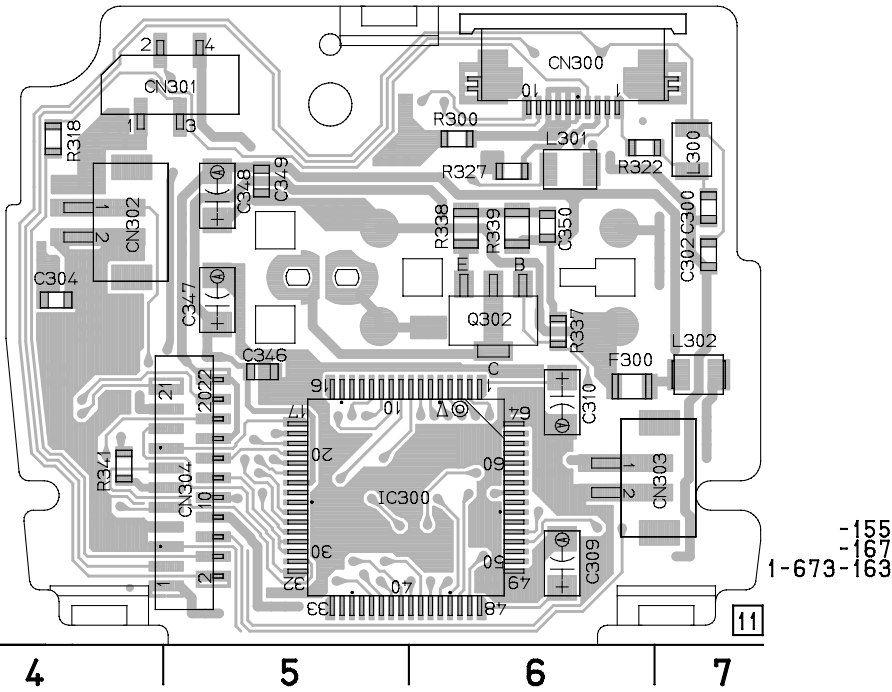
MA-354/355/357 (STEREO MIC AMP) PRINTED WIRING BOARD

— Ref. No. MA-354 Board; 7,000, MA-355 Board; 8,000, MA-357 Board; 9,000 Series —

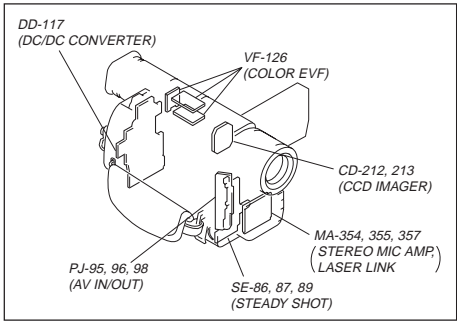
MA-354/355/357 BOARD
(SIDE A)



MA-354/355/357 BOARD
(SIDE B)

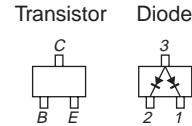


Note : This series use the three different types of printed wiring board as shown below.
DCR-TRV103/TRV110/TRV110E/TRV110P : MA-354 : 1-673-155-
DCR-TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315 : MA-355 : 1-673-167-
DCR-TR7000/TR7000E/TR7100E : MA-357 : 1-673-163-



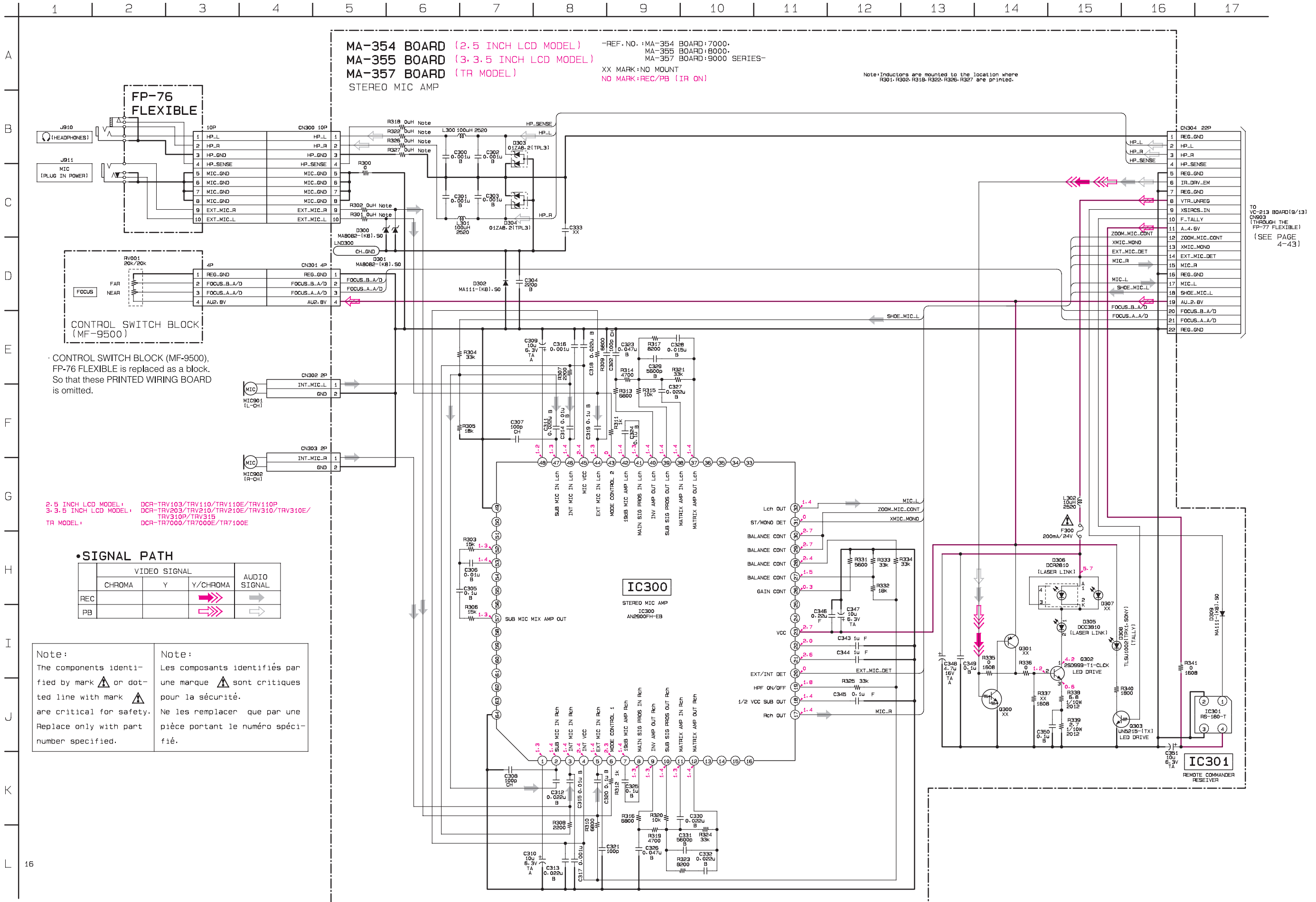
For printed wiring boards

• Chip parts



There are few cases that the part printed on this diagram isn't mounted in this model.

DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/
TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TR7000/TR7000E/TR7100E

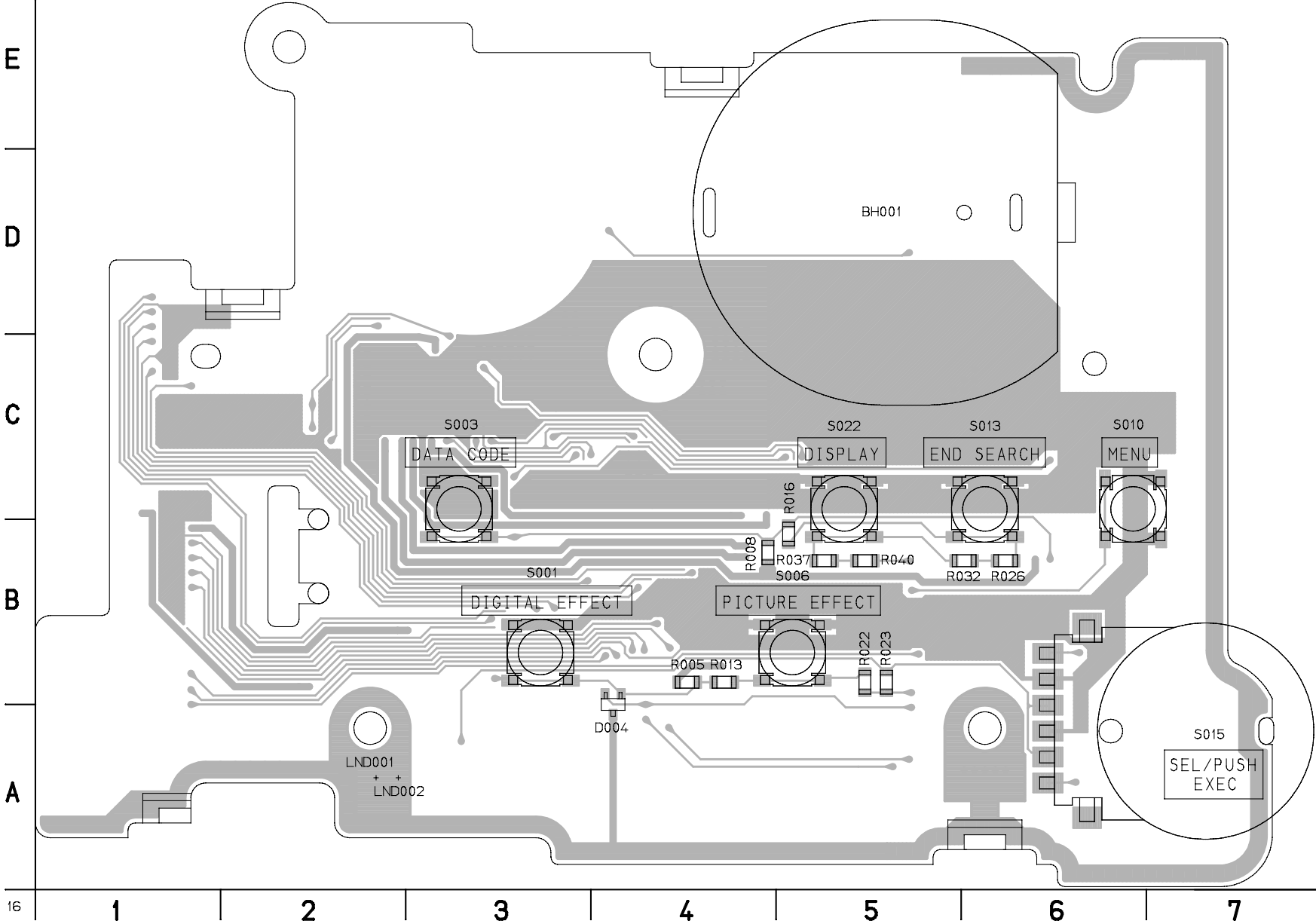


CF-62 (USER CONTROL) PRINTED WIRING BOARD (2.5 INCH LCD MODEL)
— Ref. No. CF-62 Board; 7,000 Series —

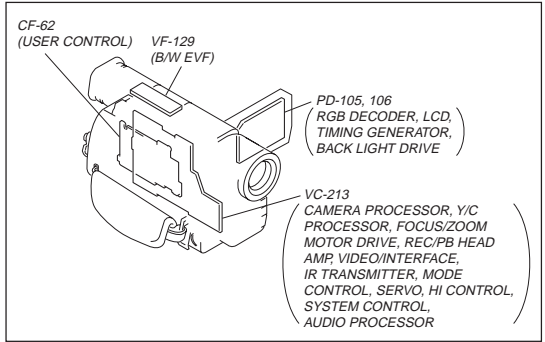
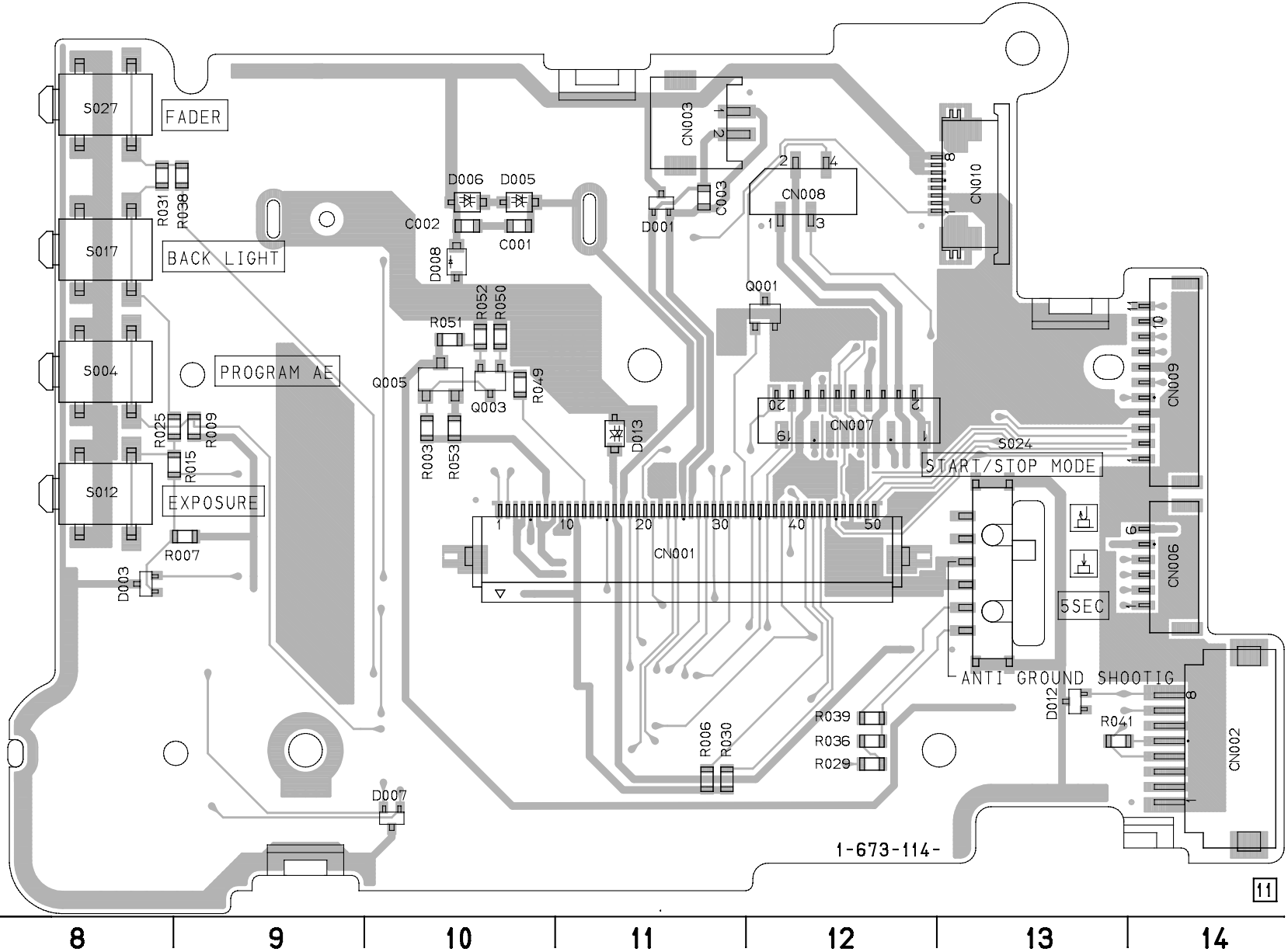
CF-62 BOARD

BH001	D-5	R013	B-4
		R015	C-8
C001	D-10	R016	B-5
C002	D-10	R022	B-5
C003	D-11	R023	B-5
		R025	C-8
CN001	B-11	R026	B-6
CN002	A-14	R029	A-12
CN003	E-11	R030	A-11
CN006	B-14	R031	D-8
CN007	C-12	R032	B-6
CN008	D-12	R036	A-12
CN009	C-14	R037	B-5
CN010	D-13	R038	D-9
		R039	A-12
D001	D-11	R040	B-5
D003	B-8	R041	A-13
D004	A-4	R049	C-10
D007	A-10	R050	D-10
D008	D-10	R051	D-10
D012	B-13	R052	D-10
D013	C-11	R053	C-10
D015	D-10		
D016	D-10	S001	B-3
		S003	C-3
Q001	D-12	S004	C-8
Q003	C-10	S006	B-5
Q005	C-10	S010	C-6
		S012	C-8
R003	C-10	S013	C-6
R005	B-4	S015	A-7
R006	A-11	S017	D-8
R007	B-9	S022	C-5
R008	B-4	S024	B-13
R009	C-9	S027	E-8

CF-62 BOARD (SIDE A)



CF-62 BOARD (SIDE B)



For printed wiring boards
• Chip parts

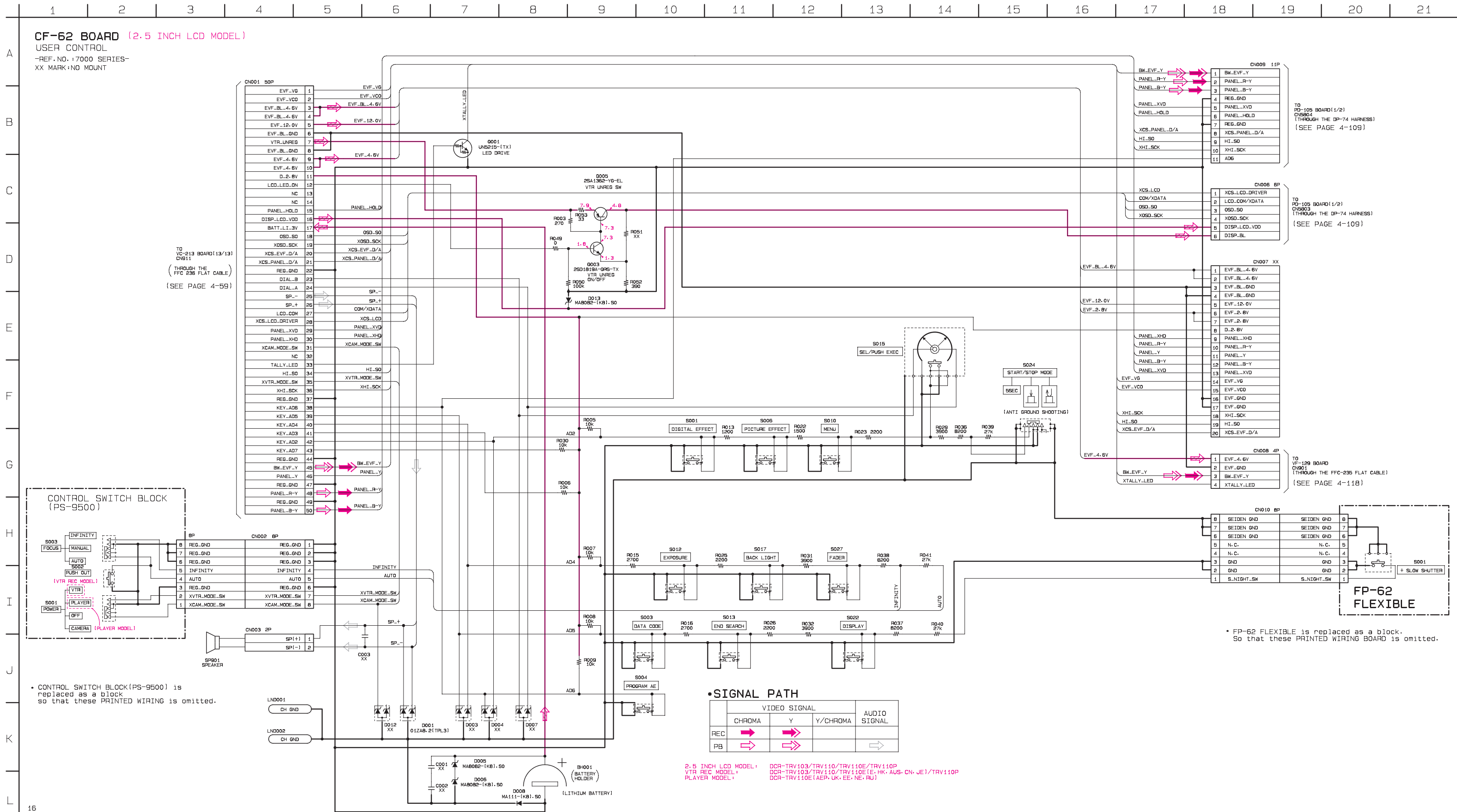
Transistor



Diode



There are few cases that the part printed on this diagram isn't mounted in this model.

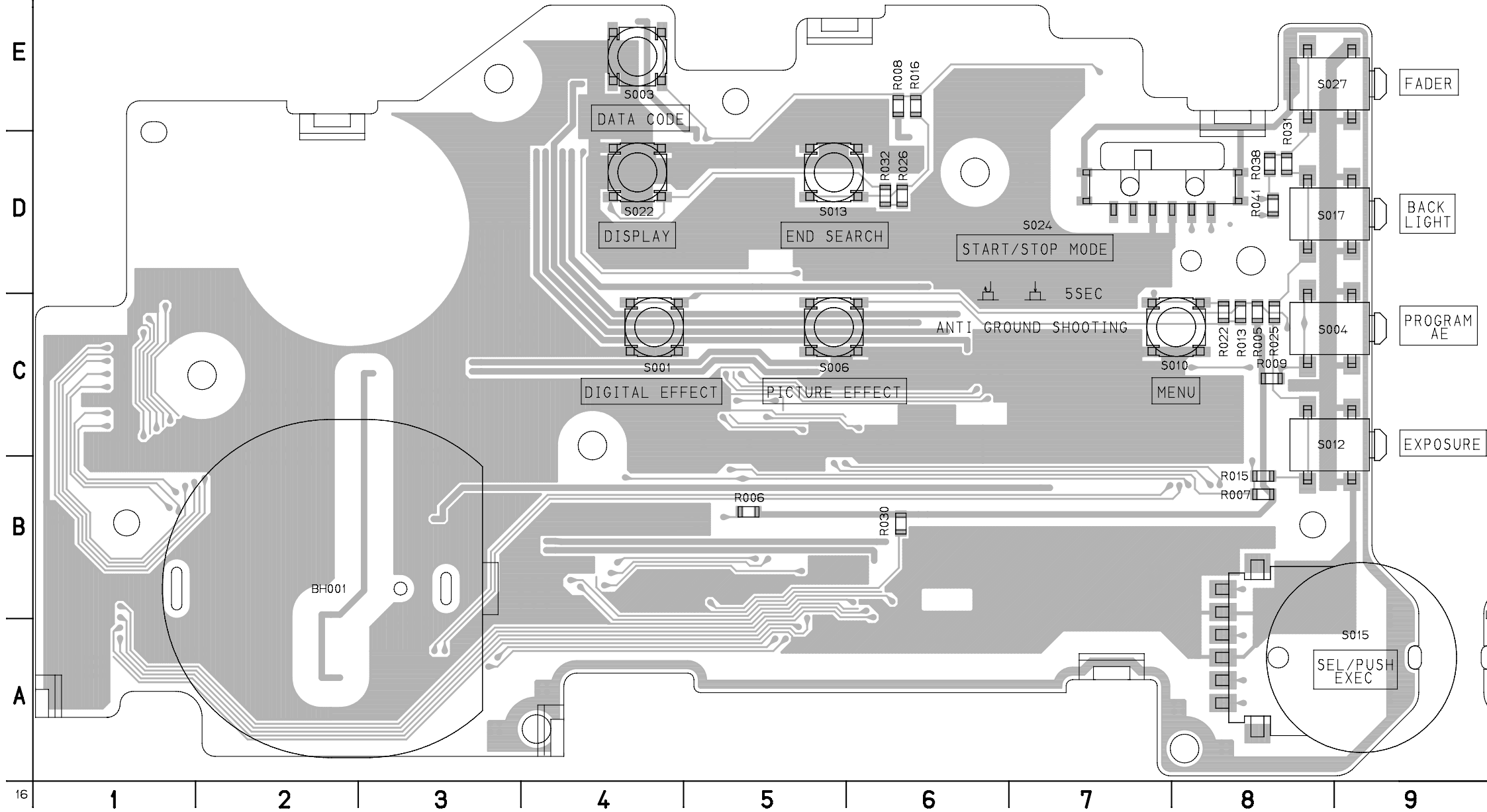


CF-63 (USER CONTROL) PRINTED WIRING BOARD (3/3.5 INCH LCD MODEL)
— Ref. No. CF-63 Board; 8,000 Series —

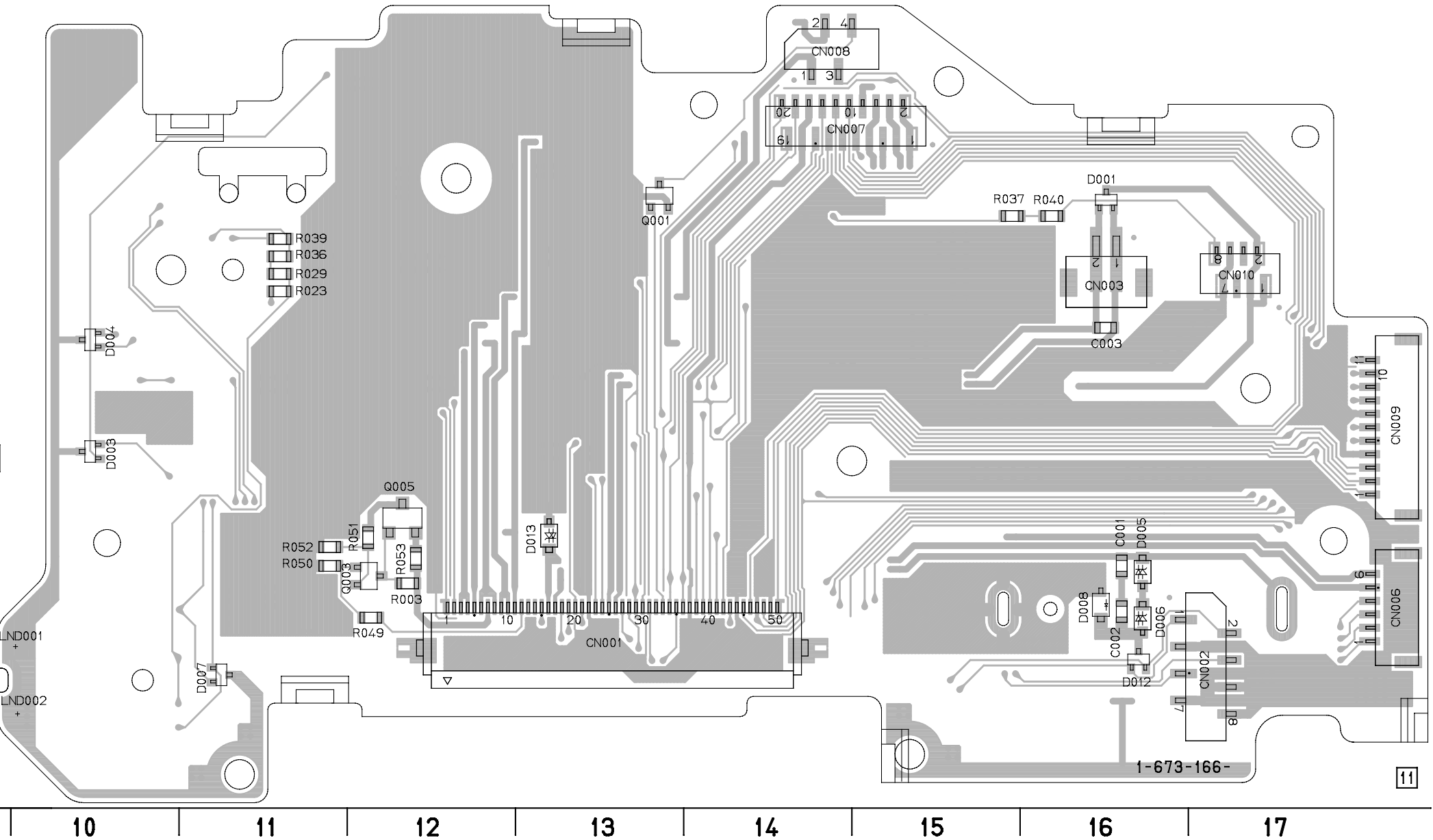
CF-63 BOARD(SIDE A)

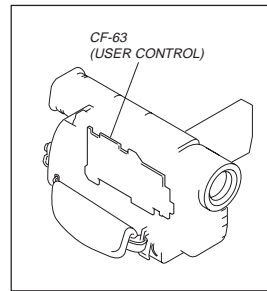
CF-63 BOARD

BH001	B-2	R009	C-8
		R013	C-8
C001	B-16	R015	B-8
C002	B-16	R022	C-8
C003	C-16	R023	D-11
		R025	C-8
CN001	A-13	R028	D-6
CN002	A-17	R029	D-11
CN003	D-16	R030	B-6
CN006	B-17	R031	D-8
CN007	E-14	R032	D-6
CN008	E-14	R036	D-11
CN009	C-17	R037	D-15
CN010	D-17	R038	D-8
		R039	D-11
D001	D-16	R040	D-16
D003	C-10	R041	D-8
D004	C-10	R049	B-12
D005	B-16	R050	B-11
D006	B-16	R051	B-12
D007	A-11	R052	B-11
D008	B-16	R053	B-12
D012	A-16		
D013	B-13	S001	C-4
		S004	C-8
Q001	D-13	S006	C-5
Q003	B-12	S010	C-7
Q005	B-12	S012	C-8
		S013	D-5
R003	B-12	S015	A-9
R005	C-8	S017	D-8
R006	B-5	S022	D-4
R007	B-8	S024	D-7



CF-63 BOARD(SIDE B)



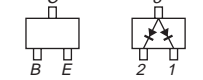


CF-63
(USER CONTROL)

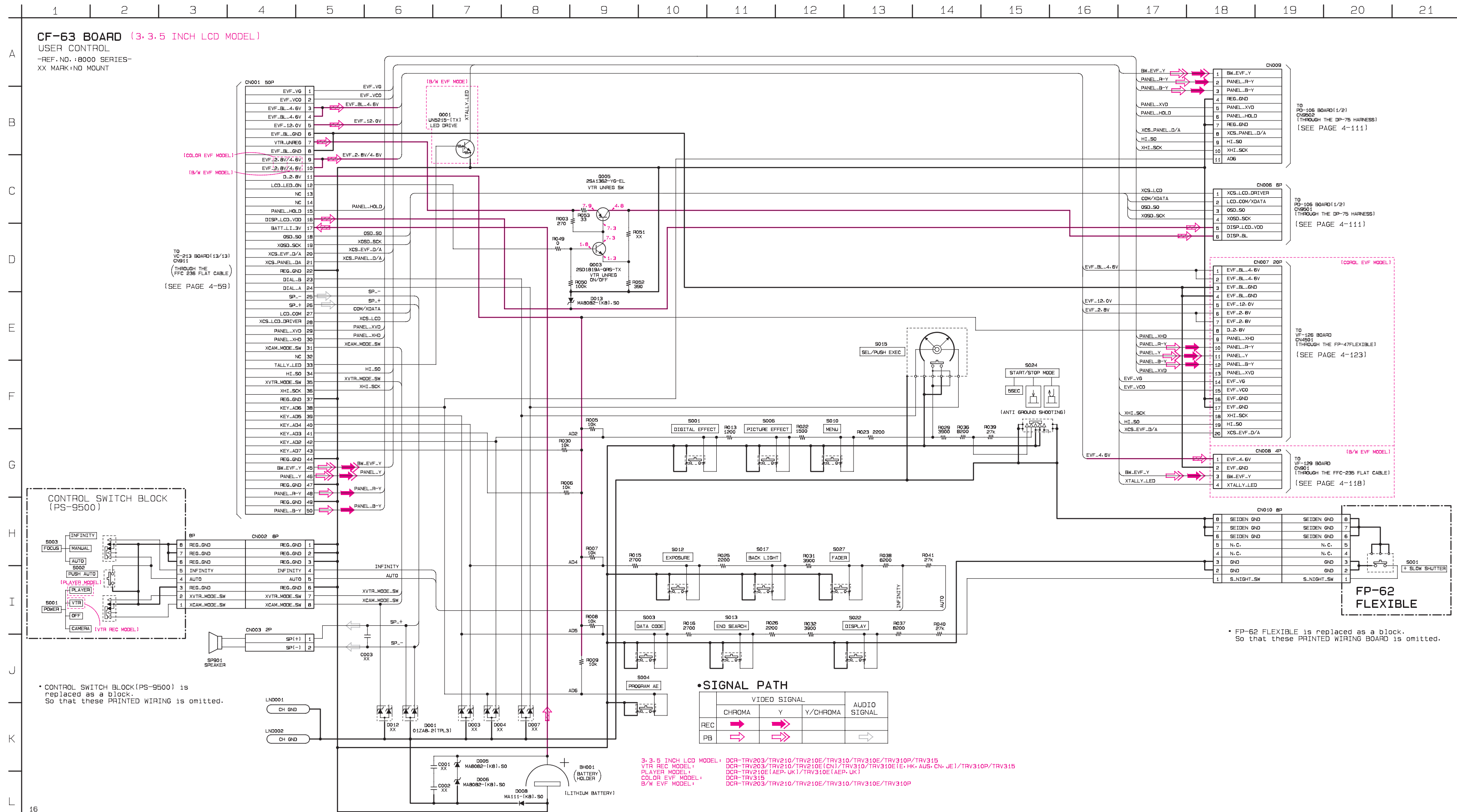
For printed wiring boards

- Chip parts

Transistor Diode



There are few cases that the part printed on this diagram isn't mounted in this model.

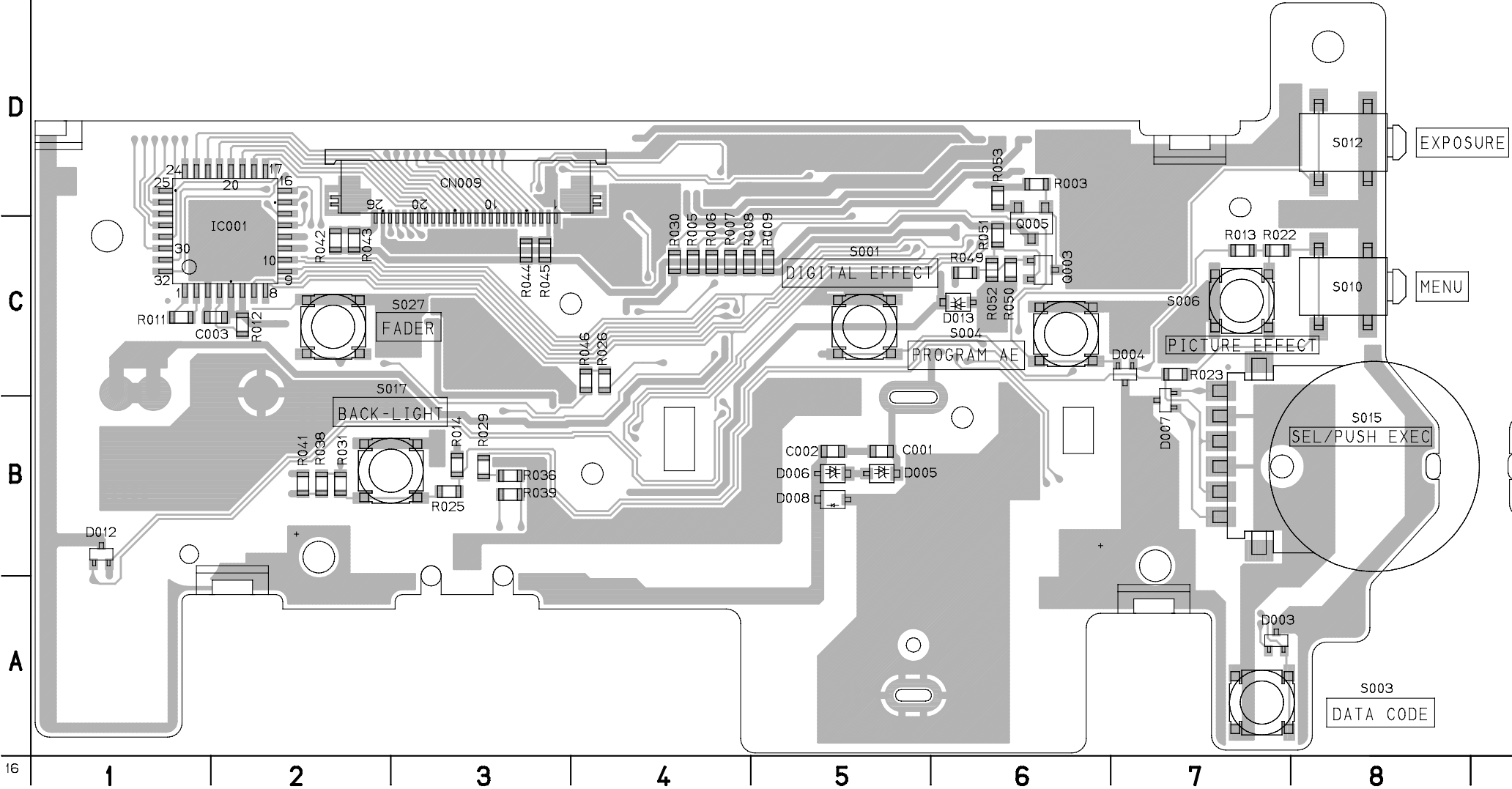


CF-65 (USER CONTROL) PRINTED WIRING BOARD (TR MODEL)
— Ref. No. CF-65 Board; 9,000 Series —

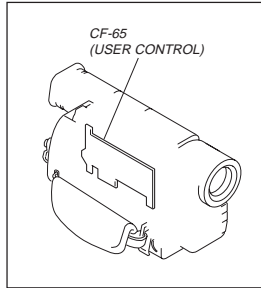
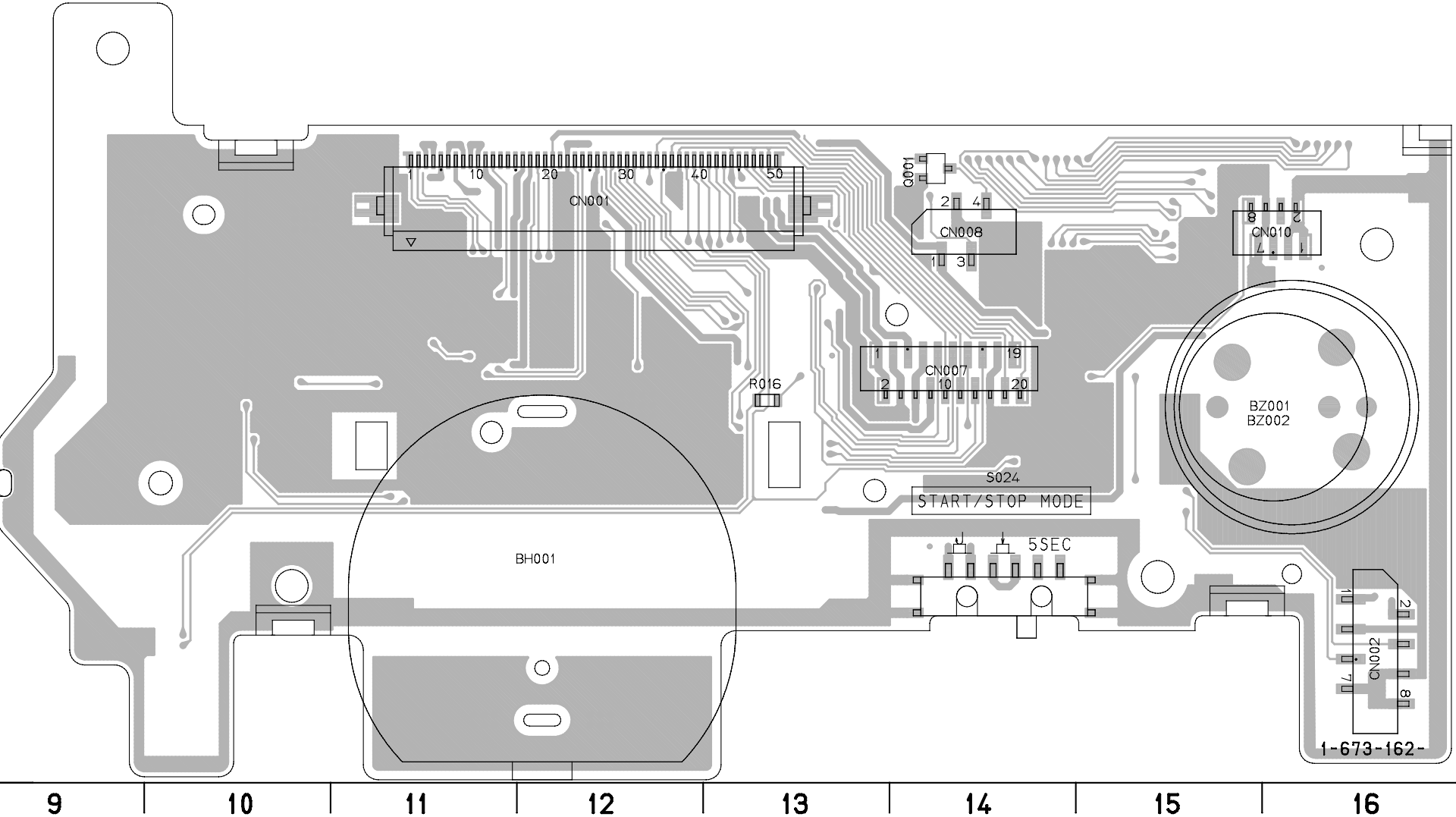
CF-65 BOARD(SIDE A)

CF-65 BOARD

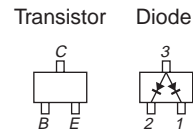
BH001	B-11	R011	C-1
		R012	C-2
BZ001	C-16	R013	C-7
BZ002	B-16	R014	B-3
		R016	C-13
C001	B-5	R022	C-7
C002	B-5	R023	C-7
C003	C-2	R025	B-3
		R026	C-4
CN001	D-12	R029	B-3
CN002	A-16	R030	C-4
CN007	C-14	R031	B-2
CN008	C-14	R036	B-3
CN009	D-3	R038	B-2
CN010	C-16	R039	B-3
		R041	B-2
D003	A-7	R042	C-2
D004	C-7	R043	C-2
D005	B-5	R044	C-3
D006	B-5	R045	C-3
D007	B-7	R046	C-4
D008	B-5	R049	C-6
D012	B-1	R050	C-6
D013	C-6	R052	C-6
		R053	D-6
IC001	C-2	S001	C-5
		S003	A-7
Q001	D-14	S004	C-6
Q003	C-6	S006	C-7
Q005	C-6	S010	C-7
		S012	D-8
R003	D-6	S015	B-8
R005	C-4	S017	B-2
R006	C-4	S024	B-14
R007	C-4	S027	C-2
R008	C-4		
R009	C-5		



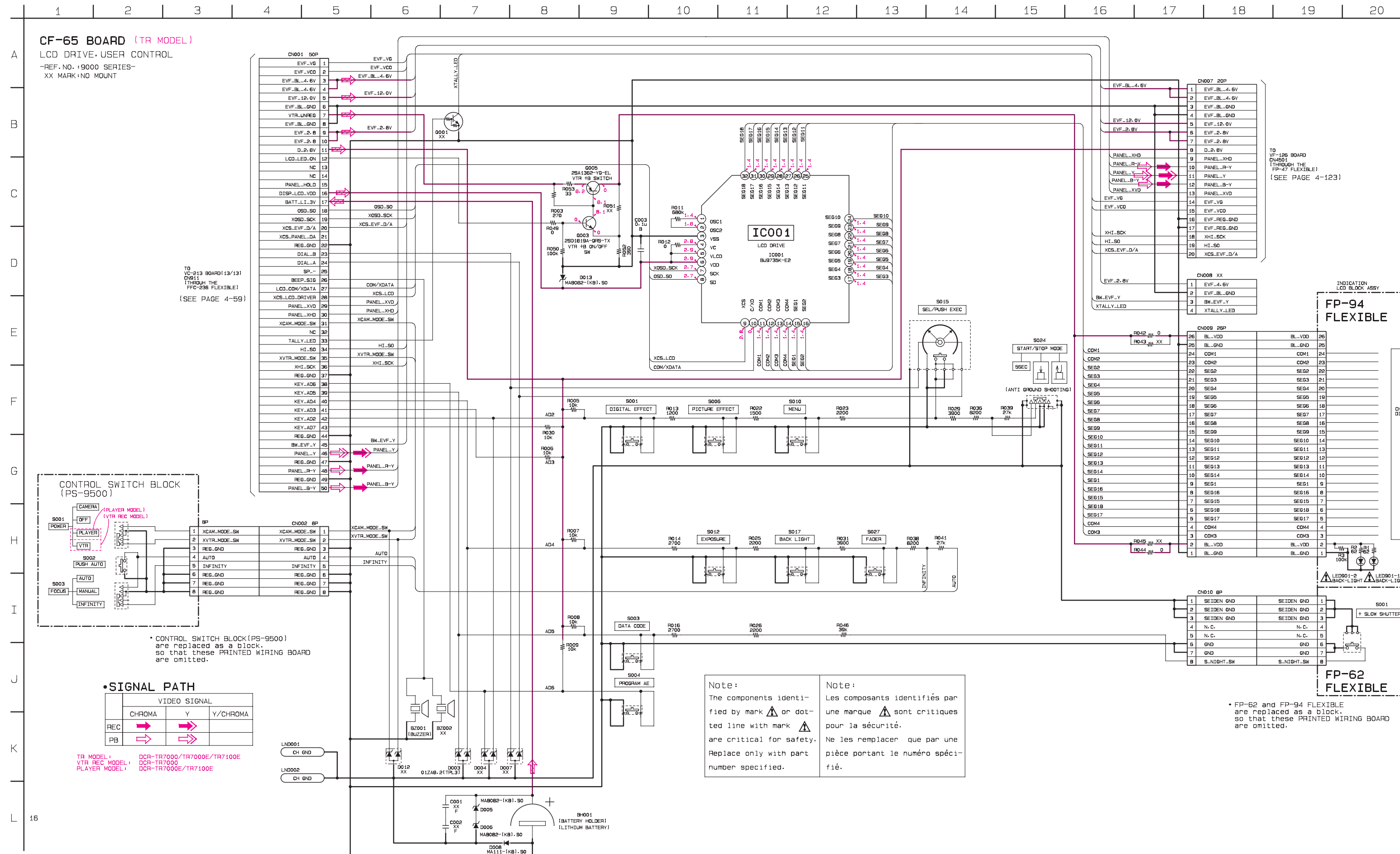
CF-65 BOARD(SIDE B)



For printed wiring boards
• Chip parts



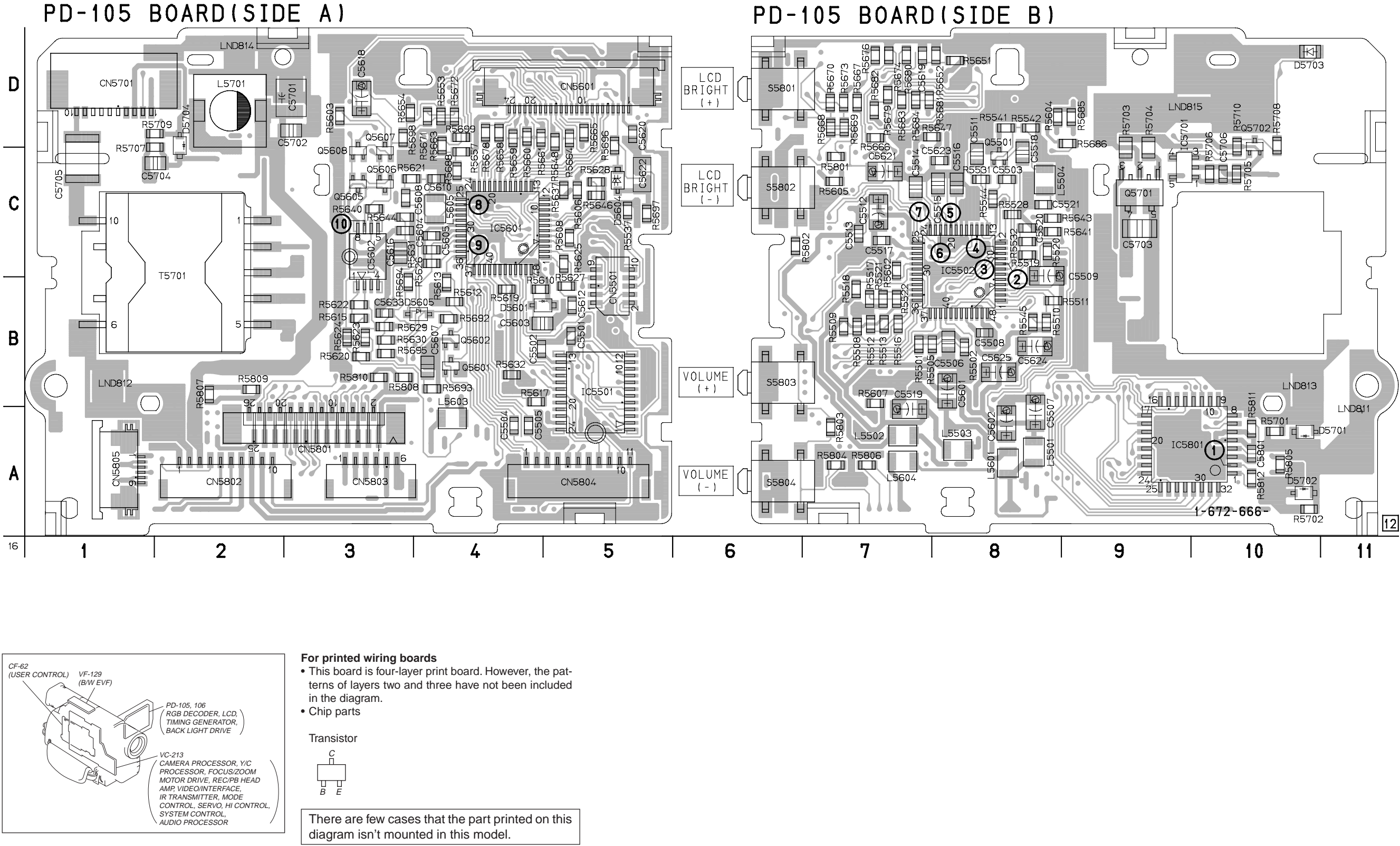
There are few cases that the part printed on this diagram isn't mounted in this model.



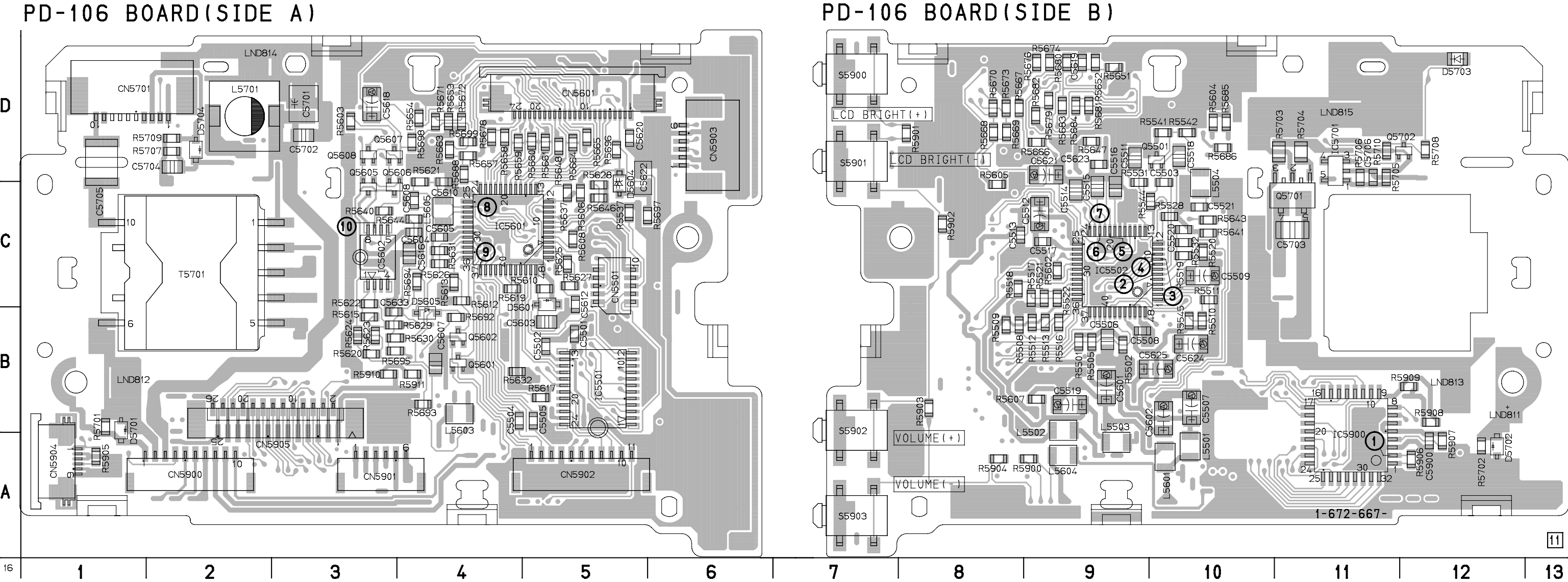
PD-105 BOARD

C5501	B-5	L5501	A-8	R5641	C-8
C5502	B-4	L5502	A-7	R5643	D-5
C5503	C-8	L5503	A-8	R5644	C-3
C5504	A-4	L5504	C-8	R5646	C-5
C5505	A-4	L5601	A-8	R5647	D-7
C5506	B-8	L5603	A-4	R5648	C-8
C5507	A-8	L5604	A-7	R5651	D-8
C5508	B-8	L5605	C-4	R5652	D-8
C5509	B-8	L5701	D-2	R5653	D-4
C5511	C-8			R5654	D-3
C5512	C-7	O5501	C-8	R5657	C-4
C5513	C-7	O5601	B-4	R5658	D-4
C5514	C-7	O5602	B-4	R5659	D-4
C5515	C-8	O5605	C-3	R5660	D-4
C5516	C-8	O5606	C-3	R5661	D-4
C5517	C-7	O5607	C-3	R5663	C-4
C5518	C-8	O5608	C-3	R5664	D-5
C5519	A-7	O5701	C-9	R5665	D-5
C5520	C-8	O5702	C-10	R5666	D-7
C5521	C-8			R5667	D-7
C5601	B-8	R5501	B-7	R5668	D-7
C5602	A-8	R5502	B-8	R5669	D-7
C5603	B-4	R5506	B-8	R5670	D-7
C5604	C-3	R5508	B-7	R5671	D-4
C5605	C-4	R5509	B-7	R5672	D-4
C5607	B-4	R5510	B-8	R5674	D-7
C5608	C-3	R5511	B-8	R5676	D-7
C5610	C-4	R5512	B-7	R5678	D-4
C5612	B-5	R5513	B-7	R5679	D-7
C5616	C-3	R5516	B-7	R5680	D-7
C5618	D-3	R5517	B-7	R5681	D-7
C5619	D-7	R5518	B-7	R5682	D-7
C5620	D-5	R5519	C-8	R5684	D-7
C5621	C-7	R5520	C-8	R5685	D-9
C5622	C-5	R5521	B-7	R5686	D-9
C5623	C-8	R5522	B-7	R5688	C-4
C5624	B-8	R5528	C-8	R5692	B-4
C5625	B-8	R5531	C-8	R5694	B-3
C5633	B-3	R5532	C-8	R5695	B-3
C5701	D-3	R5537	C-5	R5696	D-5
C5702	D-3	R5541	D-8	R5697	C-5
C5703	C-9	R5542	D-8	R5698	D-3
C5704	C-2	R5544	C-8	R5699	D-4
C5705	C-1	R5545	B-8	R5701	A-10
C5706	C-10	R5602	C-7	R5702	A-10
C5812	A-10	R5603	D-3	R5703	C-9
		R5604	D-8	R5704	C-9
CN5501	B-5	R5605	C-7	R5705	C-10
CN5601	D-5	R5606	C-5	R5706	C-10
CN5701	D-1	R5607	B-7	R5707	C-2
CN5801	A-3	R5608	C-5	R5710	C-10
CN5802	A-2	R5610	B-4	R5801	C-7
CN5803	A-3	R5612	B-4	R5802	C-6
CN5804	A-5	R5613	B-4	R5803	A-7
CN5805	A-1	R5615	B-3	R5804	A-7
		R5617	B-4	R5805	A-10
D5601	B-4	R5619	B-4	R5806	A-7
D5604	C-5	R5620	B-3	R5807	B-2
D5605	B-4	R5621	C-3	R5808	B-3
D5614	C-5	R5622	B-3	R5810	B-3
D5701	A-10	R5623	B-3	R5811	A-10
D5702	A-10	R5624	B-3	R5812	A-10
D5703	D-10	R5626	C-4		
D5704	C-2	R5627	B-5	S5801	D-6
		R5628	C-5	S5802	C-6
IC5501	B-5	R5629	B-3	S5803	B-6
IC5502	C-8	R5630	B-3	S5804	A-6
IC5601	C-4	R5631	C-4		
IC5602	C-3	R5632	B-4	T5701	C-2
IC5701	C*9	R5637	C-5		
IC5801	A-9	R5640	C-3		

PD-105 (RGB DECODER, LCD, TIMING GENERATOR, BACK LIGHT DRIVE) PRINTED WIRING BOARD (2.5 INCH LCD MODEL)
— Ref. No. PD-105 Board; 10,000 Series —



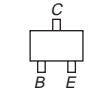
PD-106 (RGB DECODER, LCD, TIMING GENERATOR, BACK LIGHT DRIVE) PRINTED WIRING BOARD (3/3.5 INCH LCD MODEL)
— Ref. No. PD-106 Board; 10,000 Series —



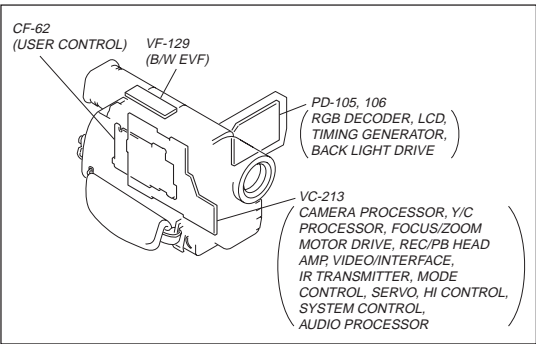
For printed wiring boards

- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.
- Chip parts

Transistor



There are few cases that the part printed on this diagram isn't mounted in this model.



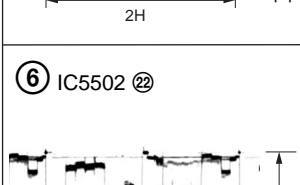
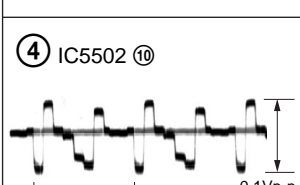
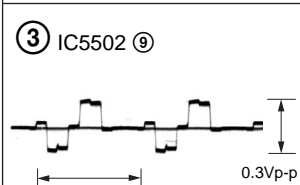
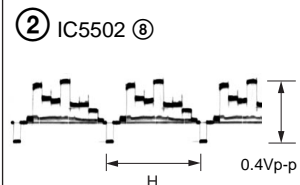
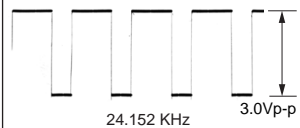
PD-106 BOARD

C5501	B-5	L5503	A-9	R5644	C-4
C5502	B-5	L5504	C-10	R5646	C-5
C5503	C-10	L5601	A-10	R5647	D-9
C5504	B-4	L5603	B-4	R5651	D-9
C5505	B-5	L5604	A-9	R5652	D-9
C5506	B-9	L5605	C-4	R5653	D-4
C5507	B-10	L5701	D-2	R5654	D-4
C5508	B-9	L5906	A-12	R5657	D-4
C5509	C-10			R5658	D-4
C5511	D-9	O5501	D-10	R5659	D-4
C5512	C-9	O5601	B-4	R5660	D-5
C5513	C-8	O5602	B-4	R5661	D-5
C5514	C-9	O5605	C-3	R5663	D-4
C5515	C-9	O5606	C-3	R5664	D-5
C5516	C-9	O5607	D-3	R5665	D-5
C5517	C-9	O5608	D-3	R5666	D-9
C5518	D-10	O5701	C11	R5667	D-8
C5519	B-9	O5702	D-12	R5668	D-8
C5520	C-10			R5669	D-8
C5521	C-10	R5501	B-9	R5670	D-8
C5601	B-9	R5502	B-9	R5671	D-4
C5602	B-10	R5505	B-9	R5672	D-4
C5603	B-5	R5508	B-8	R5673	D-8
C5604	C-4	R5509	B-8	R5674	D-9
C5605	C-4	R5510	B-10	R5676	D-9
C5607	B-4	R5511	C-10	R5678	D-4
C5608	C-4	R5512	B-9	R5679	D-9
C5610	C-4	R5513	B-9	R5680	D-9
C5612	B-5	R5516	B-9	R5681	D-9
C5616	C-4	R5517	C-9	R5682	D-9
C5618	D-3	R5518	C-8	R5683	D-9
C5619	D-9	R5519	C-10	R5684	D-9
C5620	D-5	R5520	C-10	R5685	D-10
C5621	D-9	R5521	C-9	R5686	D-10
C5622	D-5	R5522	C-9	R5688	D-4
C5623	D-9	R5523	C-10	R5692	B-4
C5624	B-10	R5531	C-9	R5694	C-4
C5625	B-10	R5532	C-10	R5695	B-3
C5633	B-3	R5537	C-5	R5696	D-5
C5701	D-3	R5541	D-10	R5697	C-6
C5702	D-3	R5542	D-10	R5698	D-4
C5703	C-11	R5544	C-10	R5699	D-4
C5704	D-2	R5545	B-10	R5701	B-1
C5705	D-1	R5602	C-9	R5702	A-12
C5706	D-11	R5603	D-3	R5703	D-11
C5900	A-12	R5604	D-10	R5704	D-11
		R5605	C-8	R5705	D-11
		R5606	C-5	R5706	D-11
CN5501	C-5	R5607	B-9	R5707	D-2
CN5601	D-5	R5608	C-5	R5709	D-2
CN5701	D-1	R5610	C-5	R5710	D-11
CN5900	A-2	R5612	C-4	R5900	A-9
CN5901	A-3	R5613	C-4	R5901	D-8
CN5902	A-5	R5615	B-3	R5902	C-8
CN5903	D-6	R5617	B-5	R5903	B-8
CN5904	A-1	R5619	C-4	R5904	A-8
CN5905	B-2	R5620	B-3	R5905	A-1
		R5621	C-4	R5907	A-12
		R5622	B-3	R5908	B-12
		R5623	B-3	R5909	B-12
		R5624	B-3	R5910	B-4
		R5625	C-5	R5911	B-3
		R5626	C-4		
		R5627	C-5	S5900	D-7
		R5628	C-5	S5901	D-7
		R5629	B-3	S5902	B-7
		R5630	B-3	S5903	A-7
		R5631	C-4		
		R5632	B-4	T5643	C-10
		R5637	C-5	T5701	C-2
		R5640	C-3		
		R5641	C-10		
		R5643	D-5		

For schematic diagram

- Refer to page 4-103 for printed wiring board.

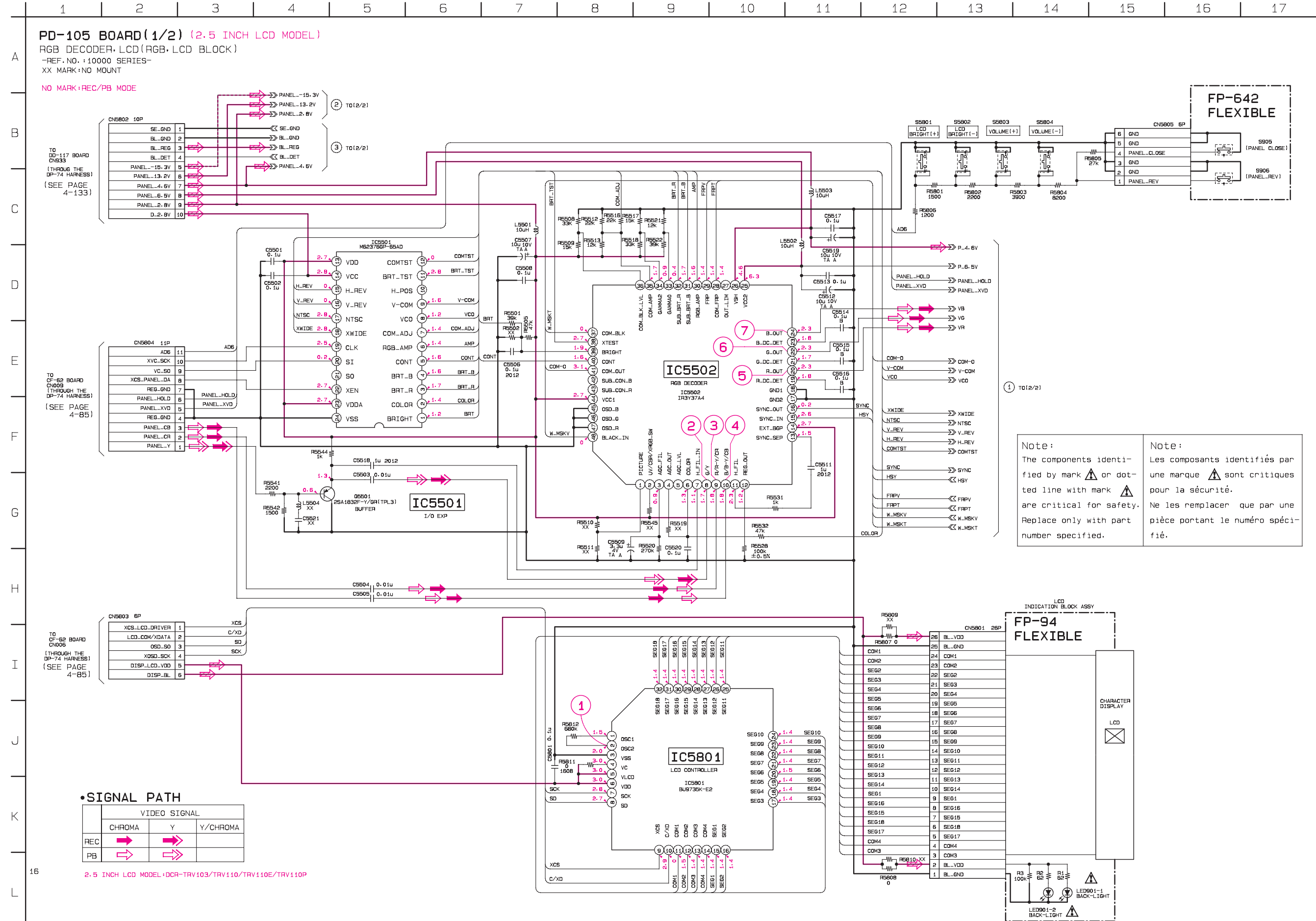
① IC5801 ②



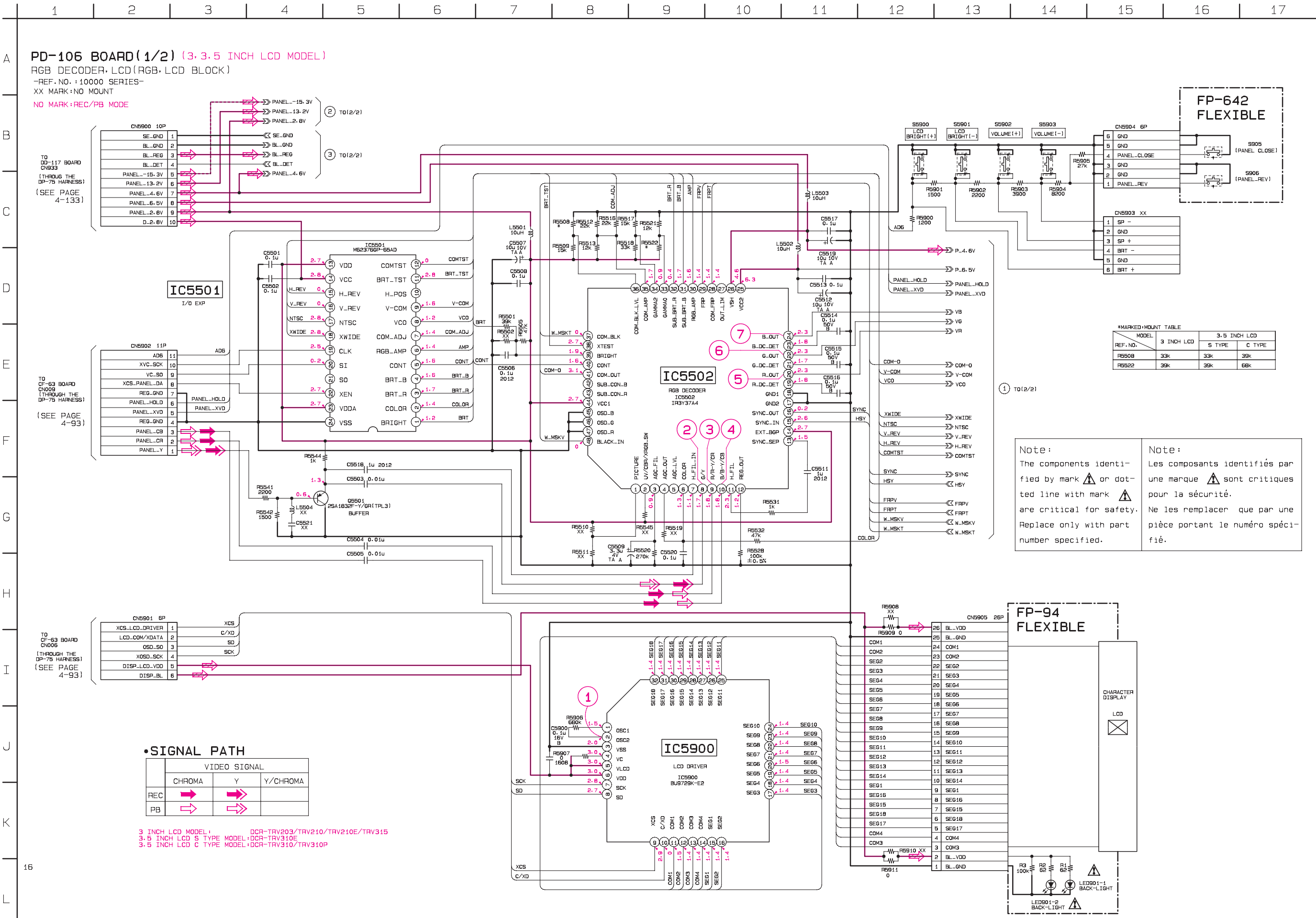
•SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡➡	
PB	➡	➡➡	

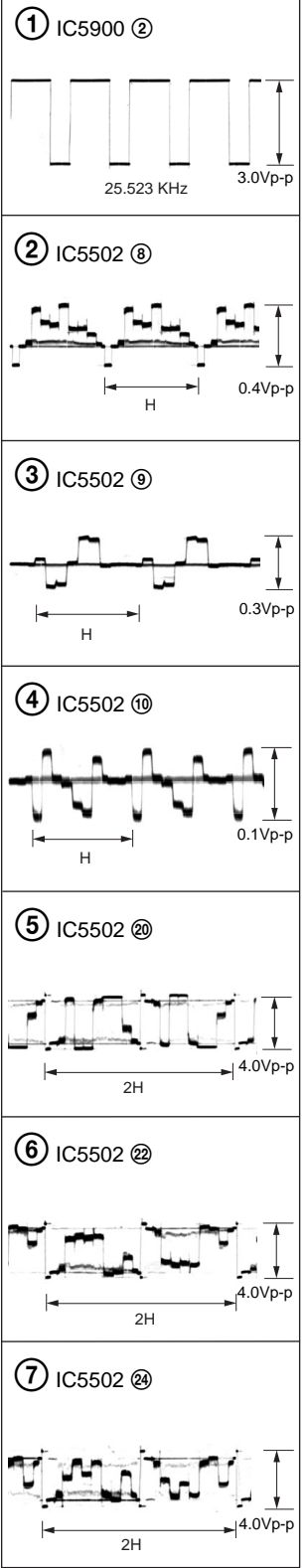
2.5 INCH LCD MODEL:DCR-TRV103/TRV110/TRV110E/TRV110F



For schematic diagram
• Refer to page 4-105 for printed wiring board.






PD-106 BOARD (1/2)
CAMERA REC/PB

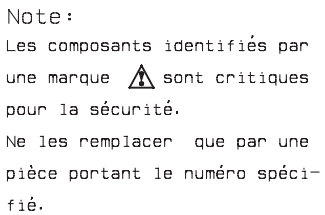


*MARKED+MOUNT TABLE

REF. NO.	MODEL	3.5 INCH LCD	
		S TYPE	C TYPE
RB508	33k	33k	39k
RB522	39k	39k	68k

Note:
The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

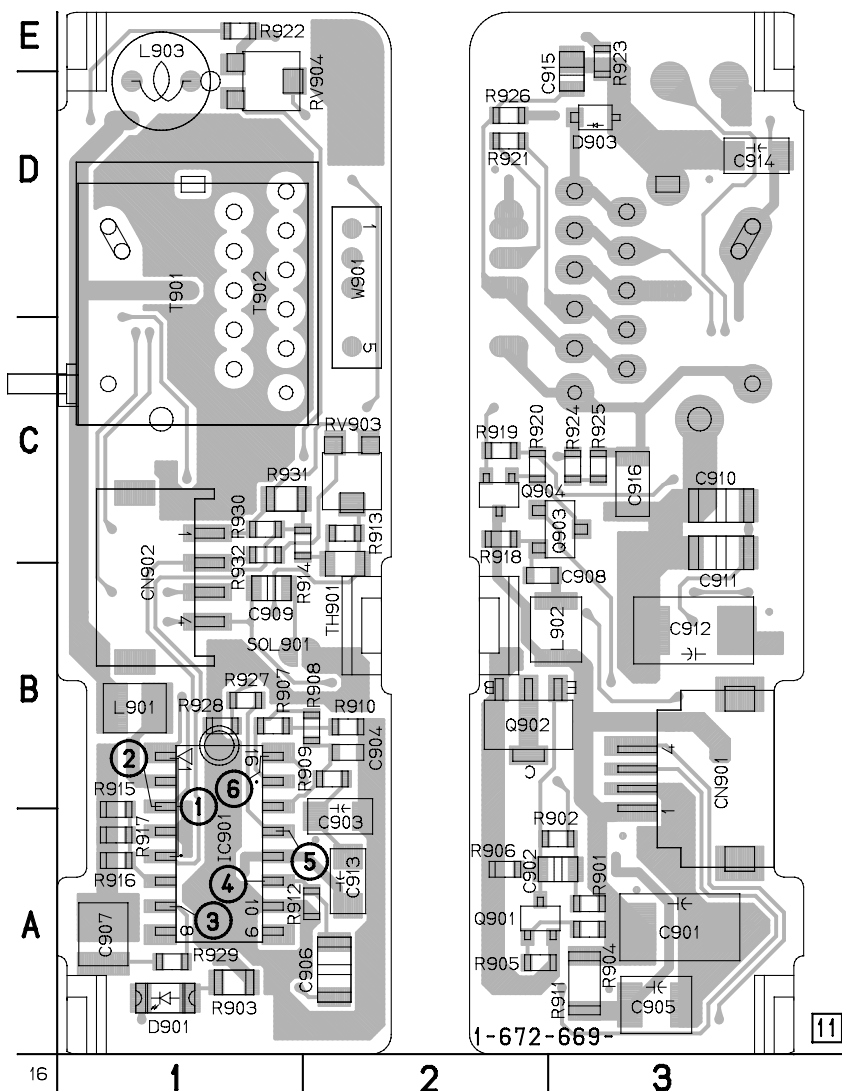
Note:
Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



VF-129 (B/W EVF) PRINTED WIRING BOARD (B/W EVF MODEL)

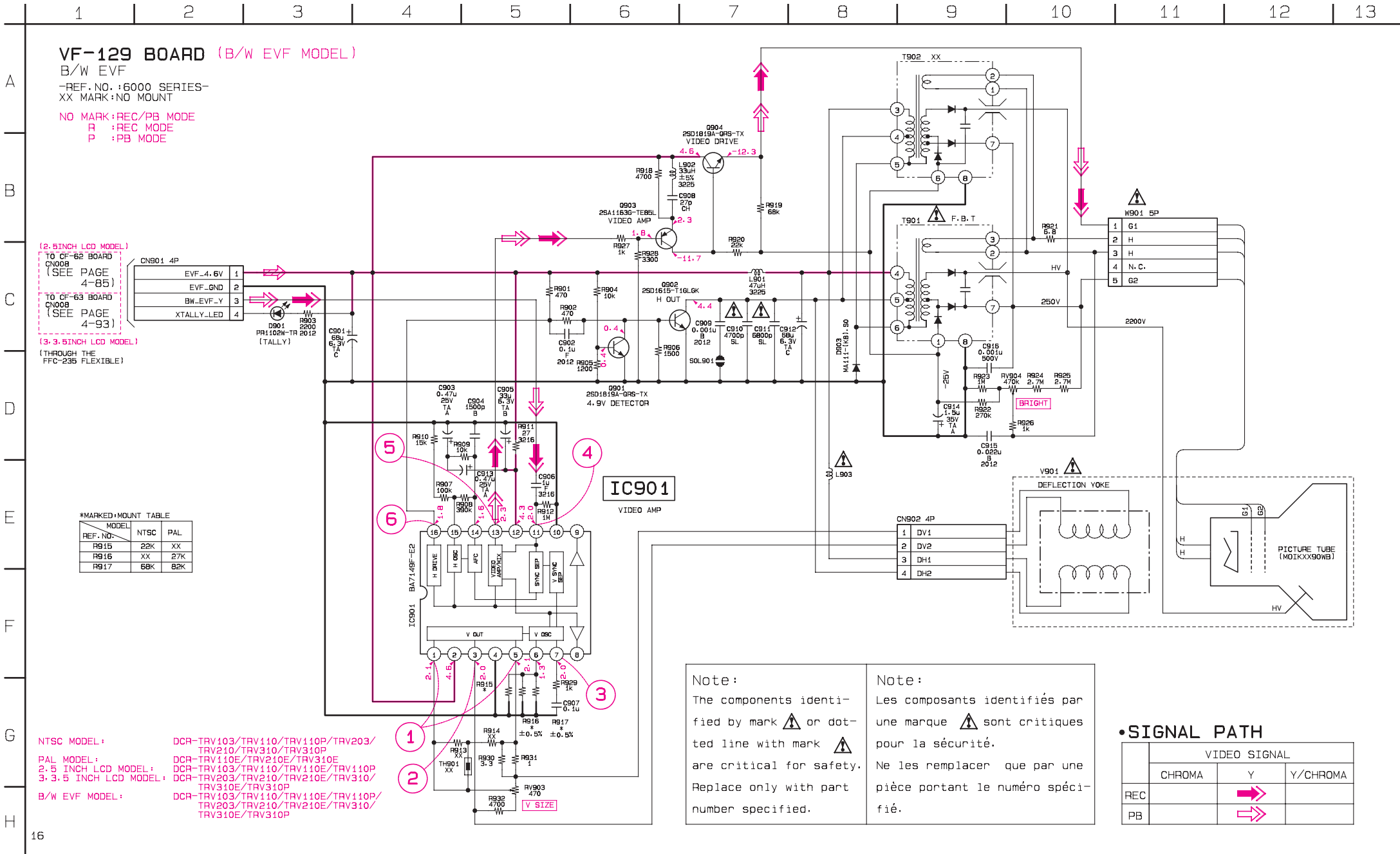
— Ref. No. VF-129 Board; 6,000 Series —

VF-129 BOARD VF-129 BOARD
(SIDE A) (SIDE B)



VF-129 BOARD

C901	A-3	R905	A-2
C902	A-3	R906	A-2
C903	A-2	R907	B-1
C904	B-2	R908	B-2
C905	A-3	R909	B-2
C906	A-2	R910	B-2
C907	A-1	R911	A-3
C908	C-2	R912	A-2
C909	B-1	R913	C-2
C910	C-3	R914	C-2
C911	C-3	R915	B-1
C912	B-3	R916	A-1
C913	A-2	R917	A-1
C914	D-3	R918	C-2
C915	E-3	R919	C-2
C916	C-3	R920	C-2
		R921	D-2
CN901	B-3	R922	E-1
CN902	B-1	R923	E-3
		R924	C-3
D901	A-1	R925	C-3
D903	D-3	R926	D-2
		R927	B-1
IC901	A-1	R928	B-1
		R929	A-1
L901	B-1	R930	C-1
L902	B-3	R931	C-1
L903	D-1	R932	C-1
		RV903	C-2
Q901	A-2	RV904	D-1
Q902	B-2		
Q903	C-3	T901	D-1
Q904	C-2	T902	D-1
		TH901	B-2
R901	A-3	W901	D-2
R902	A-3		
R903	A-1		
R904	A-3		



REF. NO.	NTSC	PAL
R915	22K	XX
R916	XX	27K
R917	56K	56K

NTSC MODEL: DCR-TRV103/TRV110/TRV110P/TRV203/
PAL MODEL: DCR-TRV110E/TRV210E/TRV310E
2.5 INCH LCD MODEL: DCR-TRV103/TRV110/TRV110E/TRV110P
3.3.5 INCH LCD MODEL: DCR-TRV203/TRV210/TRV210E/TRV310/
B/W EVF MODEL: DCR-TRV103/TRV110/TRV110E/TRV110P/
DCR-TRV203/TRV210/TRV210E/TRV310/
TRV310E/TRV310P

Note:
The components identi-
fied by mark or dot-
ted line with mark are critical for safety.
Replace only with part
number specified.

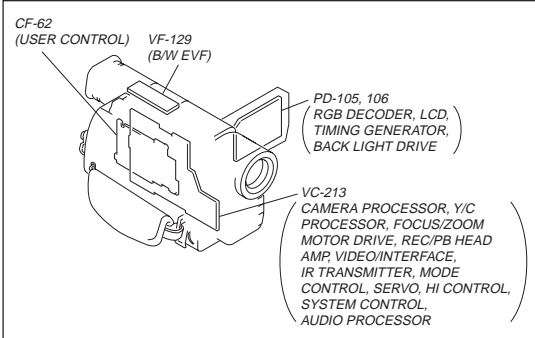
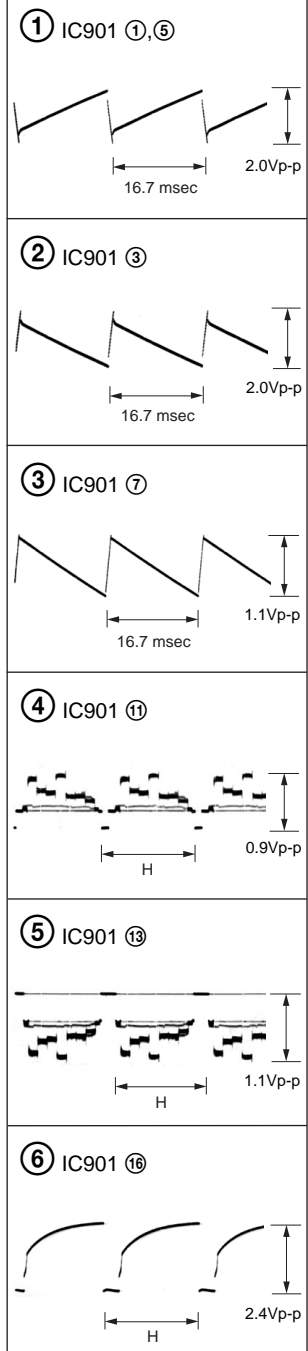
Note:
Les composants identifiés par
une marque sont critiques
pour la sécurité.
Ne les remplacer que par une
pièce portant le numéro spéci-
fié.

• SIGNAL PATH

	VIDEO SIGNAL	
	CHROMA	Y / CHROMA
REC		
PB		

VF-129 BOARD

CAMERA REC/PB



For printed wiring boards

• Chip parts

Transistor



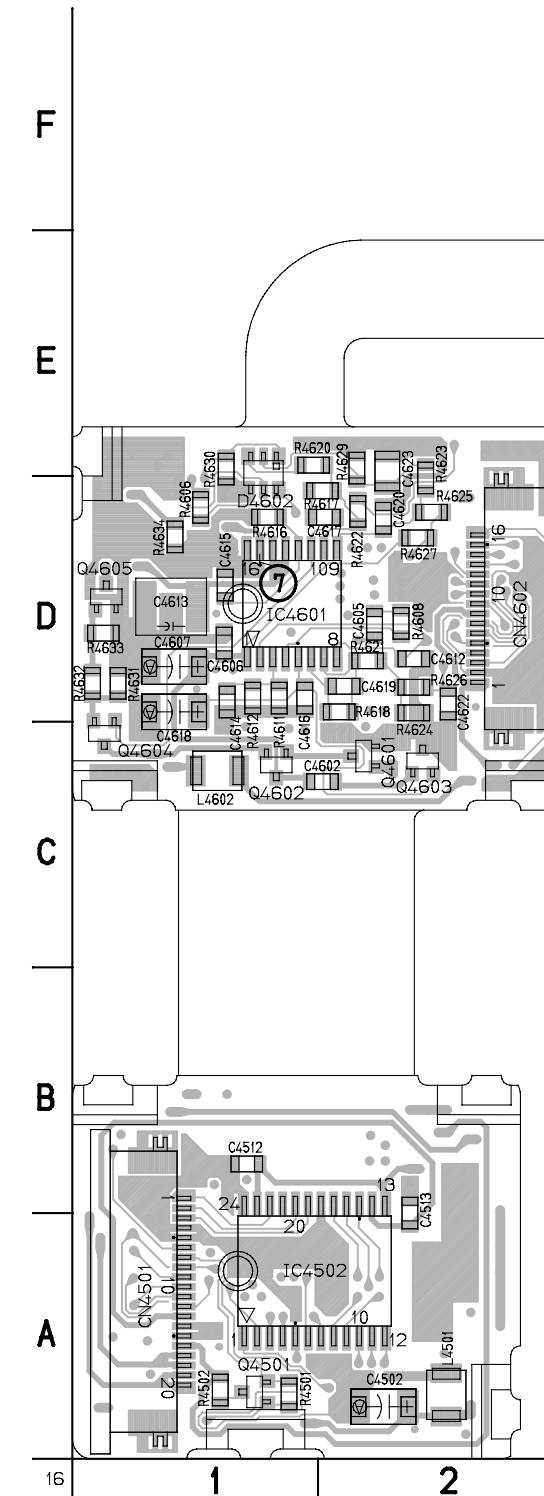
There are few cases that the part printed on this diagram isn't mounted in this model.

DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/
TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TR7000/TR7000E/TR7100E

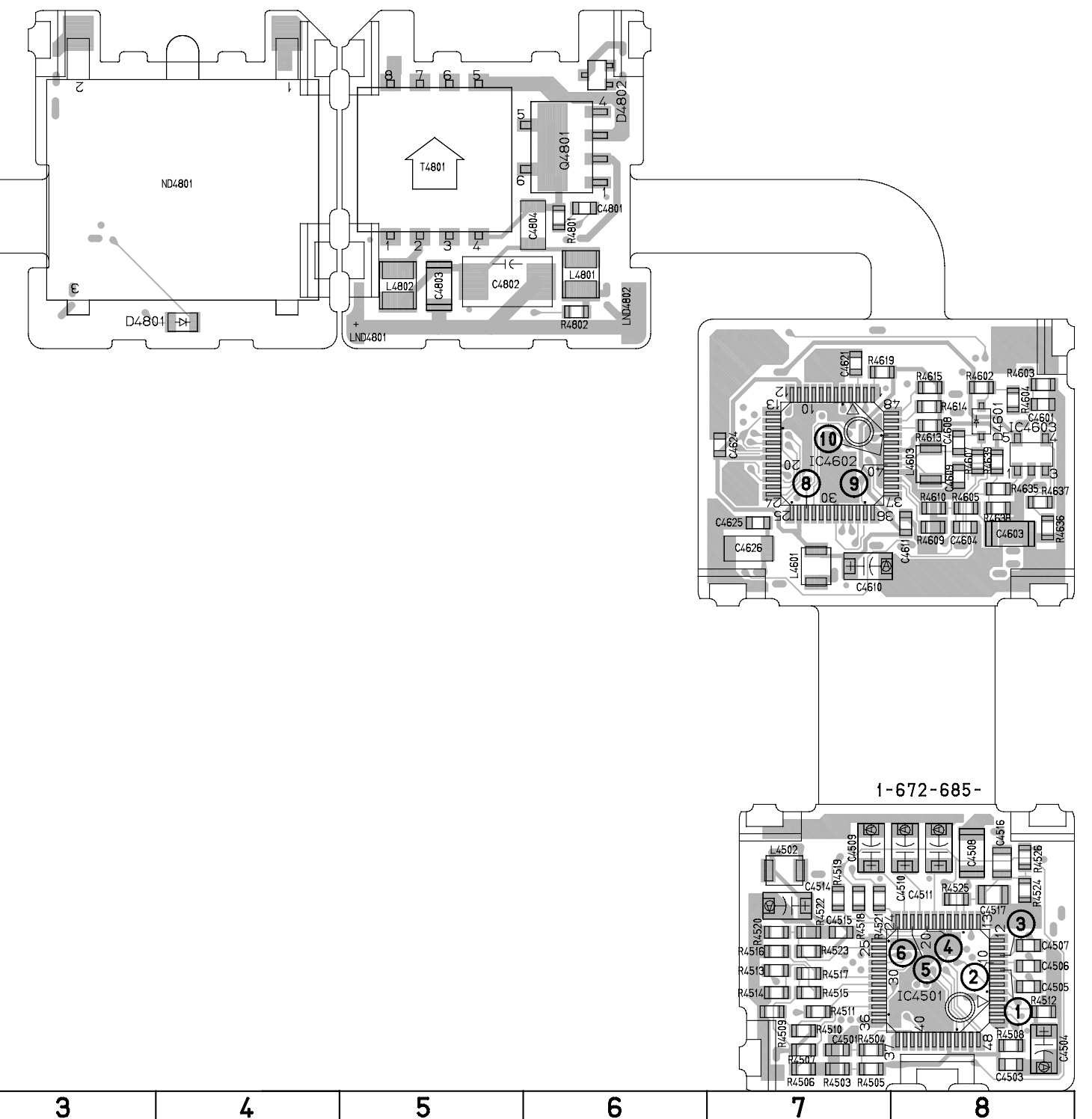
VF-126 (COLOR EVF) PRINTED WIRING BOARD (COLOR EVF MODEL)

— Ref. No. VF-126 Board; 10,000 Series —

VF-126 BOARD(SIDE A)



VF-126 BOARD(SIDE B)

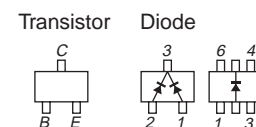


VF-126 BOARD

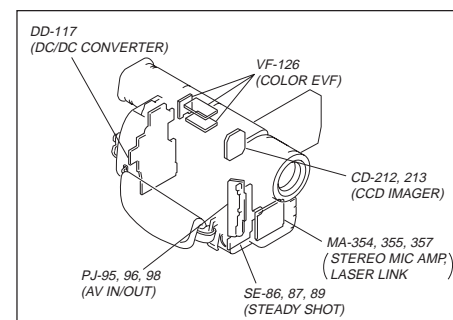
C4501	A-7	D4601	D-8	R4524	B-8
C4502	A-2	D4602	D-1	R4525	B-8
C4503	A-8	D4801	E-4	R4526	B-8
C4504	A-8	D4802	F-6	R4528	A-7
C4505	A-8			R4602	D-8
C4506	A-8	IC4501	A-8	R4604	D-8
C4507	A-8	IC4502	A-8	R4605	D-8
C4508	B-8	IC4601	D-1	R4606	D-1
C4509	B-7	IC4602	D-7	R4607	D-8
C4510	B-8	IC4603	D-8	R4608	D-2
C4511	B-8			R4609	D-8
C4512	B-1	L4501	A-2	R4610	D-8
C4513	B-2	L4502	B-7	R4611	D-1
C4514	B-7	L4601	C-7	R4612	D-1
C4515	A-7	L4602	C-1	R4613	D-8
C4516	B-8	L4603	D-8	R4614	D-8
C4517	B-8	L4801	E-6	R4615	D-8
C4601	D-8	L4802	E-5	R4616	D-1
C4602	C-2			R4617	D-2
C4603	D-8	ND4801	E-4	R4618	D-2
C4604	D-8			R4619	D-7
C4605	D-2	Q4501	A-1	R4620	E-1
C4606	D-1	Q4601	C-2	R4621	D-2
C4607	D-1	Q4602	C-1	R4622	D-2
C4608	D-8	Q4603	C-2	R4623	D-2
C4609	D-8	Q4604	C-1	R4624	D-2
C4610	C-7	Q4605	D-1	R4625	D-2
C4611	D-8	Q4801	F-6	R4626	D-2
C4612	D-2			R4627	D-2
C4613	D-1	R4501	A-1	R4629	D-2
C4614	D-1	R4502	A-1	R4630	D-1
C4615	D-1	R4503	A-8	R4631	D-1
C4616	D-1	R4504	A-7	R4632	D-1
C4617	D-2	R4505	A-7	R4634	D-1
C4618	D-1	R4506	A-7	R4635	D-8
C4619	D-2	R4507	A-7	R4636	D-8
C4620	D-2	R4508	A-7	R4637	D-8
C4621	D-7	R4509	A-9	R4638	D-1
C4622	D-2	R4510	A-7	R4638	D-8
C4623	D-2	R4511	A-7	R4639	D-8
C4624	D-7	R4512	A-8	R4801	E-6
C4625	D-7	R4513	A-7	R4802	E-6
C4626	C-7	R4514	A-7		
C4801	E-6	R4515	A-7	T4801	F-5
C4802	E-5	R4516	A-7		
C4803	E-5	R4517	A-7		
C4804	E-6	R4518	B-7		
		R4519	B-7		
CN4501	A-1	R4520	A-7		
CN4602	D-2	R4521	B-7		
		R4522	A-7		

For printed wiring boards

- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.
- Chip parts



There are few cases that the part printed on this diagram isn't mounted in this model.



[illegible]

<p>① IC4501 ⑧</p> <p>0.55Vp-p H</p>	<p>⑧ IC4502 ②⑦</p> <p>2.8Vp-p H</p>
<p>② IC4501 ⑨</p> <p>0.2Vp-p H</p>	<p>⑨ IC4502 ④①</p> <p>11MHz 2.3Vp-p</p>
<p>③ IC4501 ⑩</p> <p>0.3Vp-p H</p>	<p>⑩ IC4502 ④⑤</p> <p>2.8Vp-p V</p>
<p>④ IC4501 ②⑩</p> <p>8.0Vp-p 2H</p>	
<p>⑤ IC4501 ②②</p> <p>8.0Vp-p 2H</p>	
<p>⑥ IC4501 ②④</p> <p>8.0Vp-p 2H</p>	
<p>⑦ IC4601 ①⑤</p> <p>11.0Vp-p H</p>	

DC/DC CONVERTER
DD-117

4-128

C801	E-8	D806	B-2	O828	B-1	R852	D-6
C802	E-8	D809	B-7	O829	A-1	R853	D-6
C803	D-7	D810	B-7	O830	B-2	R854	D-6
C804	E-7	D812	B-7	O831	A-2	R859	E-7
C805	D-7	D813	C-8	O832	B-1	R864	E-7
C806	E-7	D814	F-9	O833	A-7	R865	B-7
C807	D-7	D815	F-8	O834	B-1	R866	B-7
C808	D-8	D816	E-8	O835	A-3	R867	E-7
C809	D-7	D817	C-8	O836	A-4	R868	A-6
C810	D-8	D818	D-6	O837	A-2	R870	A-6
C811	D-7	D819	E-7	O838	A-3	R871	A-3
C812	D-8	D820	B-2	O839	A-4	R872	B-2
C813	D-7	D821	B-2	O840	A-3	R873	A-1
C814	E-3	D822	F-8	O841	A-2	R874	B-1
C815	C-8	D932	G-7	O842	A-2	R875	A-6
C816	E-4	D933	F-8	O843	A-2	R876	B-1
C817	E-4	D934	G-7	O844	A-4	R877	A-3
C818	F-8	D935	F-8	O845	A-3	R878	A-7
C819	C-7	D936	G-7	O846	A-2	R879	B-1
C820	C-7	D938	E-4	O847	A-2	R880	B-1
C821	C-7			O848	A-3	R881	B-1
C822	E-4	FB931	D-4	O849	A-3	R882	B-1
C823	C-8	FB932	E-4	O850	A-3	R883	B-3
C824	C-7	FB933	D-4	O851	E-8	R884	B-4
C825	B-7			O852	B-6	R885	A-4
C826	D-4	IC801	D-7	O853	B-7	R887	B-3
C827	E-7	IC802	E-7	O854	A-7	R888	E-4
C828	E-6			O855	B-7	R889	E-2
C829	E-6	L801	D-2	O856	A-1	R890	A-2
C830	D-7	L802	D-3	O932	G-8	R891	A-3
C831	E-7	L803	D-3	O933	G-8	R892	A-3
C832	B-7	L804	E-4	O934	G-8	R893	A-3
C833	B-7	L805	B-3			R894	A-2
C834	C-8	L806	C-3	R801	E-7	R895	A-1
C836	B-7	L807	C-2	R802	D-8	R896	A-4
C837	C-7	L808	B-3	R803	D-8	R897	A-4
C838	C-7	L809	C-3	R804	D-8	R898	A-2
C840	D-3	L810	B-8	R805	D-7	R899	A-2
C841	B-8	L811	B-8	R806	E-7	R900	A-2
C842	A-1	L812	B-8	R807	D-7	R901	A-1
C843	B-8	L813	B-8	R808	D-8	R902	A-1
C844	A-8	L814	A-7	R809	D-8	R903	A-4
C845	B-8	L815	A-7	R810	E-7	R904	A-4
C847	E-2	L816	B-8	R811	D-7	R905	A-3
C848	B-3	L817	A-8	R812	D-7	R906	A-3
C849	A-7	L818	A-7	R813	F-8	R907	A-3
C850	A-8	L819	A-8	R814	D-8	R908	B-7
C851	B-8	L820	D-3	R815	D-8	R910	B-7
C852	B-3	L821	A-1	R816	D-8	R911	B-7
C853	B-3	L822	A-6	R817	D-8	R912	B-7
C854	B-8			R818	D-7	R913	F-8
C855	A-7	LF801	D-2	R819	D-7	R914	D-7
C856	E-7			R820	D-8	R915	E-6
C857	A-7	PS801	F-8	R821	D-7	R916	A-2
C860	A-1	PS802	F-7	R822	E-8	R917	A-3
C861	A-2	PS803	F-7	R824	D-7	R918	A-6
C862	A-6	PS804	F-7	R825	D-8	R919	A-2
C863	B-1	PS805	F-7	R826	D-8	R920	A-2
C864	B-2	PS806	F-7	R827	D-8	R921	D-3
C865	A-1	PS807	F-8	R828	E-8	R922	D-2
C866	A-1			R829	D-7	R923	D-3
C867	A-2	O801	F-8	R830	D-7	R924	B-1
C868	A-1	O803	E-8	R831	F-8	R925	A-4
C869	A-1	O804	F-8	R832	D-8	R926	C-9
C870	E-7	O805	F-8	R			

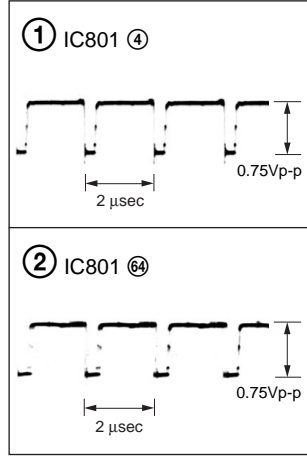
Diagram of the rear panel of the DD-117, showing various connectors and their functions:

- DD-117 (DC/DC CONVERTER)
- VF-126 (COLOR EVF)
- CD-212, 213 (CCD IMAGER)
- MA-354, 355, 357 (STEREO MIC AMP) (LASER LINK)
- SE-86, 87, 89 (STEADY SHOT)
- PJ-95, 96, 98 (AV IN/OUT)

4-129

4-130

DD-117 BOARD
CAMERA REC/PB



DD-117 BOARD
DC/DC CONVERTER
-REF. NO. 16000 SERIES-
XX MARK (NO MOUNT)

NO MARK: REC MODE
H: REC MODE
P: PB MODE
*1: TRV -B/W EVF model
*2: TRV/TRV-E EVF model

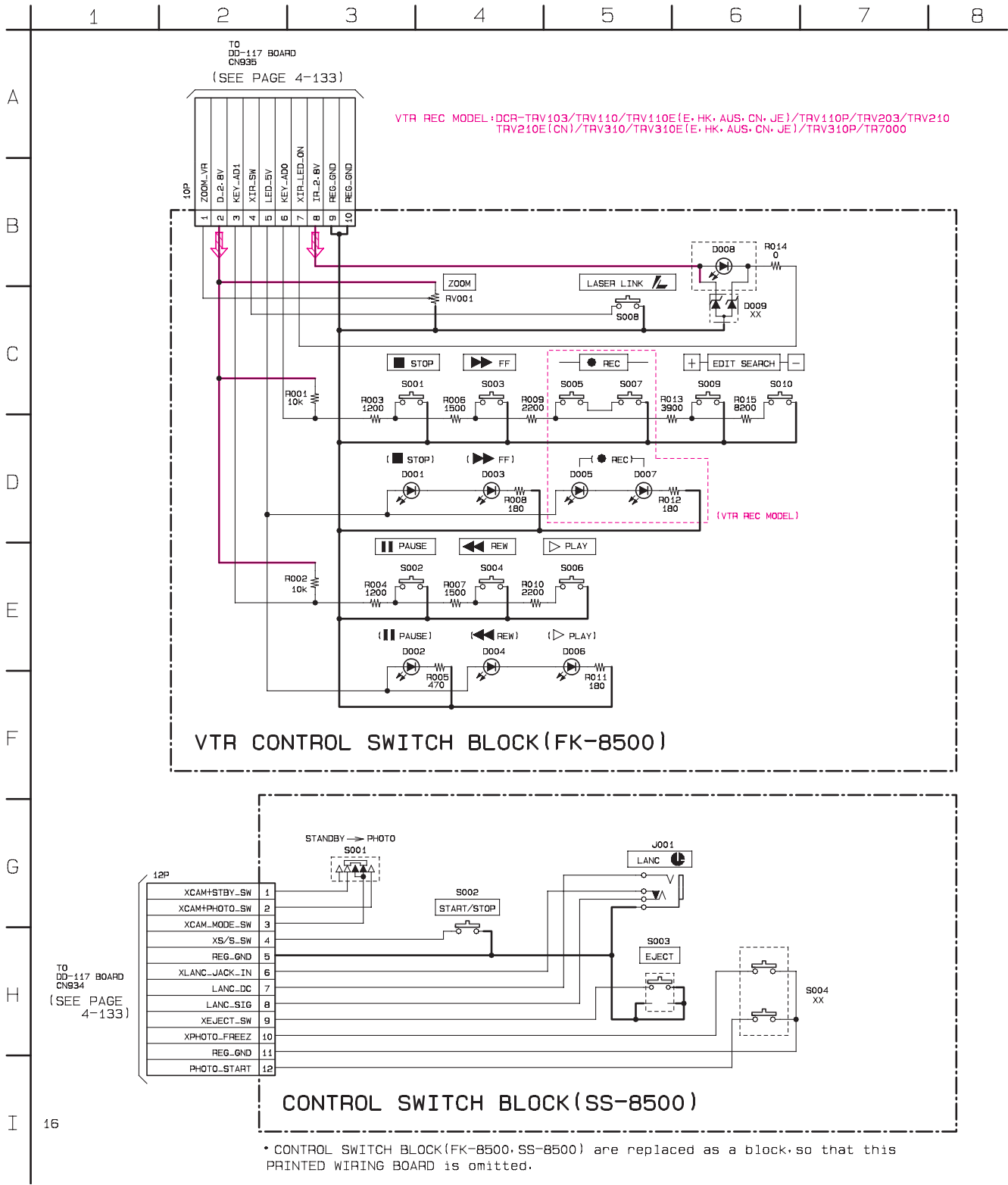
SIGNAL PATH

	REC	REC/PB	PB
Drum servo (speed and phase)			
Capstan servo (speed and phase)			

Note:
The components identified by mark Δ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacent que par une pièce portant le numéro spécifié.

TR MODEL 1
TRV COLOR EVF MODEL 1
TRV B/W EVF MODEL 1
3.3.5 INCH LCD MODEL 1
DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315



SECTION 5 ADJUSTMENTS

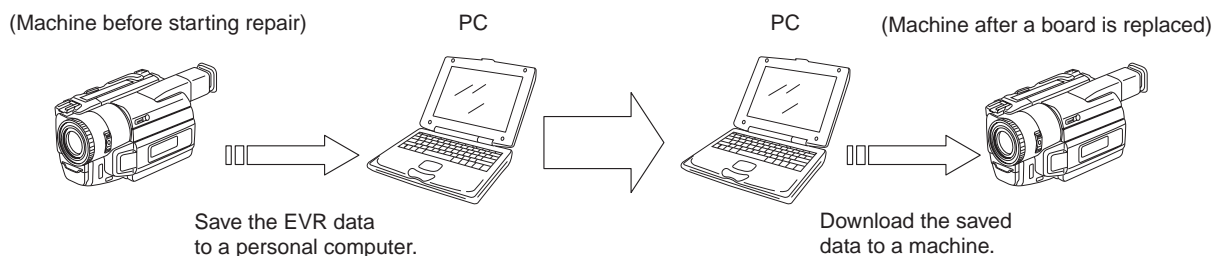
1. Before starting adjustment

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

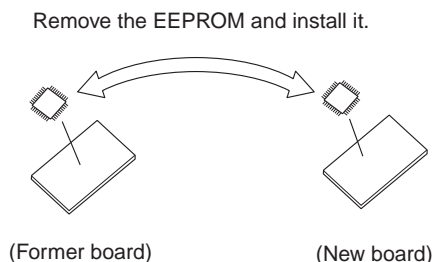
Procedure 1

Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.



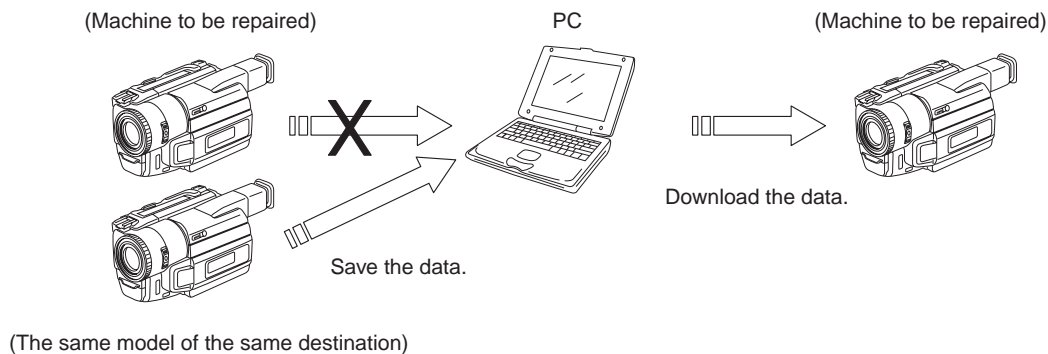
Procedure 2

Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.



Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.



After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 5-3 for the items to be checked.)

1-1. Adjusting items when replacing main parts and boards.

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced parts																													
		Block replacement								Mounted parts replacement																					
		Lens device	Mechanism deck	Color EVF block (*1) (LCD panel)	B/W EVF block V901 (*2) (Picture tube)	LCD block ND901 (*3) (Fluorescent tube)	LCD block LCD901 (*3) (LCD panel)	Mechanism deck M901 (Drum assembly)	Mechanism deck M902 (Capstan motor)	CD-212/213 board IC1401/2401 (CCD imager)	PD-105/106 board IC5502 (*3) (RGB decoder)	PD-105/106 board IC5601 (*3)(Timing generator)	VF-126 board IC4501 (*1) (RGB decoder)	VF-126 board IC4602 (*1) (Timing generator)	VF-126 board IC4601 (*1) (Backlight driver)	VF-126 board ND4801 (*1) (Fluorescent tube)	VF-129 board IC901 (*2) (CRT driver)	VF-129 board T901 (*2) (FBT)	VC-213 board IC502 (S/H, AGC)	VC-213 board IC102 (REC/PB AMP)	VC-213 board IC103 (EQ, A/D CONV., PLL)	VC-213 board IC501, X501 (Timing generator)	VC-213 board IC643 (LINE OUT AMP)	VC-213 board IC351 (Video interface)	VC-213 board IC254, X251 (X'tal OSC.)	VC-213 board IC601 (Base band input)	VC-213 board IC251 (8mm Y/C process)	VC-213 board IC201 (8mm PB RF AMP)	VC-213 board IC644 (IR transmitter)	VC-213 board IC760 (8mm AFM process)	
Initialization of C, D, E, F page data	Initialization of C page data																														
	Initialization of D page data																														
	Initialization of E, F page data																														
Camera	HALL adj.	●																													
	Flange back adj.	●							●																						
	AGC gain calibration adj.								●										●												
	Color reproduction adj.								●										●												
	IRIS IN/OUT adj.	●							●										●												
	Auto white balance standard data input								●										●												
	Auto white balance adj.								●										●												
Color EVF (*1)	Color EVF initial data input																														
	VCO adj.												●																		
	Bright adj.											●												●							
	Contrast adj.											●												●							
	Backlight consumption current adj.														●	●								●							
	White balance adj.			●									●		●	●															
B/W EVF (*2)	Centering adj.				●													●	●												
	Focus adj.				●													●	●												
	Aberration adj.				●													●	●												
	Horizontal amplitude adj.				●													●	●												
	Vertical amplitude adj.				●													●	●												
	Brightness adj.				●													●	●												
LCD (*3)	LCD initial data input																														
	VCO adj.											●																			
	D range adj.										●													●							
	Bright adj.										●													●							
	Contrast adj.										●													●							
	V-COM level adj.										●																				
	Color adj.										●																				
	V-COM adj.						●				●																				
White balance adj.				●	●					●																					
System control	Battery end adj.																														
Servo & RF	Switching position adj.		●					●													●	●									
	AGC center level adj.																				●	●									
	APC & AEQ adj.																				●	●									
	PLL f ₀ & LPF f ₀ final adj.																				●	●									
	Hi8/standard8 switching position adj.		●					●																							
	CAP FG duty adj.		●						●																						
Video	27MHz/36MHz origin oscillation adj.																					●									
	AOI chroma BPF f ₀ adj.																						●								
	S VIDEO OUT Y level adj.																						●								
	S VIDEO OUT Cr, Cb level adj.																							●							
	Hi8/standard8 14MHz origin oscillation adj.																								●						
	BBi PLL f ₀ adj.																									●					
	Hi8/standard8 Y OUT level adj.																										●				
	Hi8/standard8 C OUT level adj.																											●			
	Hi8/standard8 AFC f ₀ adj.																												●		
Hi8/standard8 RP filter f ₀ adj.																													●		
IR	IR video carrier frequency adj.																														●
	IR video deviation adj.																														●
	IR audio deviation adj.																														●
Audio	Hi8/standard8 AFM BPF f ₀ adj.																														●
	Hi8/standard8 AFM 1.5MHz deviation adj.																														●
	Hi8/standard8 AFM 1.7MHz deviation adj.																														●
Mechanism	Tape path adj.		●					●	●																						

Table. 5-1-1(1).

• Adjusting items when replacing a board or EEPROM

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced parts					
		Board replacement					
		(COMPLETE) SE-86/87/89 board	(COMPLETE) VC-213 board	(COMPLETE) (*3) PD-105/106 board	(COMPLETE) (*1) VF-126 board	(COMPLETE) (*2) VF-129 board	
						(EEPROM) VC-213 board	(EEPROM) VC-213 board
Initialization of C, D, E, F page data	Initialization of C page data					●	
	Initialization of D page data					●	
	Initialization of E, F page data						●
Camera	HALL adj.		●				●
	Flange back adj.		●				●
	AGC gain calibration adj.		●				●
	Color reproduction adj.		●				●
	IRIS IN/OUT adj.		●				●
	Auto white balance standard data input		●				●
	Auto white balance adj.		●				●
Color EVF (*1)	Color EVF initial data input		●			●	
	VCO adj.		●		●	●	
	Bright adj.		●		●	●	
	Contrast adj.		●		●	●	
	Backlight consumption current adj.		●		●	●	
	White balance adj.		●		●	●	
B/W EVF (*2)	Centering adj.					●	
	Focus adj.					●	
	Aberration adj.					●	
	Horizontal amplitude adj.					●	
	Vertical amplitude adj.					●	
	Brightness adj.					●	
LCD (*3)	LCD initial data input		●			●	●*4
	VCO adj.		●	●		●	
	D range adj.		●	●		●	
	Bright adj.		●	●		●	
	Contrast adj.		●	●		●	
	V-COM level adj.		●	●		●	
	Color adj.		●	●		●	
	V-COM adj.		●	●		●	
	White balance adj.		●	●		●	
System control	Battery end adj.					●	
Servo & RF	Switching position adj.		●			●	
	AGC center level adj.					●	
	APC & AEQ adj.					●	
	PLL f ₀ & LPF f ₀ final adj.					●	
	Hi8/standard8 switching position adj.		●				●
	CAP FG duty adj.		●				●
Video	27MHz/36MHz origin oscillation adj.						●
	AOI chroma BPF f ₀ adj.					●	
	S VIDEO OUT Y level adj.					●	
	S VIDEO OUT Cr, Cb level adj.					●	
	Hi8/standard8 14MHz origin oscillation adj.						●
	BBI PLL f ₀ adj.						●
	Hi8/standard8 Y OUT level adj.						●
	Hi8/standard8 C OUT level adj.						●
	Hi8/standard8 AFC f ₀ adj.						●
	Hi8/standard8 RP filter f ₀ adj.						●
IR	IR video carrier frequency adj.						●
	IR video deviation adj.						●
	IR audio deviation adj.						●
Audio	Hi8/standard8 AFM BPF f ₀ adj.						●
	Hi8/standard8 AFM 1.5MHz deviation adj.						●
	Hi8/standard8 AFM 1.7MHz deviation adj.						●
Mechanism	Tape path adj.		●				

Note 1: *1 : Color EVF model (DCR-TR7000/TR7000E/TR7100E/TRV315) only.
 *2 : B/W EVF model (DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P) only.
 *3 : TRV model (DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315) only.
 *4 : Page: E, address: C3 and C4 only.

Note 2: 720H model: DCR-TR7000/TRV103/TRV110/TRV110P/TRV203/TRV210/TRV310/TRV310P/TRV315
 960H model: DCR-TR7000E/TR7100E/TRV110E/TRV210E/TRV310E

	CD board
720H model	CD-212
960H model	CD-213

Note 3: 2.5 LCD model: DCR-TRV103/TRV110/TRV110E/TRV110P
 3/3.5 LCD model: DCR-TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315

	SE board	PD board
2.5 LCD model	SE-86	PD-105
3/3.5 LCD model	SE-87	PD-106
TR model	SE-89	—

Table 5-1-1(2).

5-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- Color monitor
- Vectorscope
- Regulated power supply
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded). (Note 1)	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	Multi CPC jig	J-6082-311-A	For adjusting the LCD block
J-9	CPC-13 jig	J-6082-443-A	For adjusting the video section For adjusting the color viewfinder
J-10	Power cord (Note 2)	J-6082-223-A	For connecting the battery terminal and DC power supply
J-11	Extension cable (16P, 0.5mm)	J-6082-357-A	For extension between the CD-212 board (CN1401) and the VC-213 board (CN501)(720H model) For extension between the CD-213 board (CN2401) and the VC-213 board (CN501)(960H model)
J-12	Extension cable (70P, 0.5mm)	J-6082-439-A	For extension between the DD-117 board (CN931) and the VC-213 board (CN914)
J-13	IR receiver jig	J-6082-383-A	For adjusting the IR transmitter
J-14	Mini pattern box	J-6082-353-B	For adjusting the flange back
J-15	Camera table	J-6082-384-A	For adjusting the flange back

Note 1: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

Note 2: Connect the adjustment remote commander to the LANC jack, and set to HOLD switch to the "ADJ" side.

Note 3: 720H model:DCR-TR7000/TRV103/TRV110/TRV110P/
TRV203/TRV210/TRV310/TRV310P/TRV315
960H model:DCR-TR7000E/TR7100E/TRV110E/TRV210E/
TRV310E

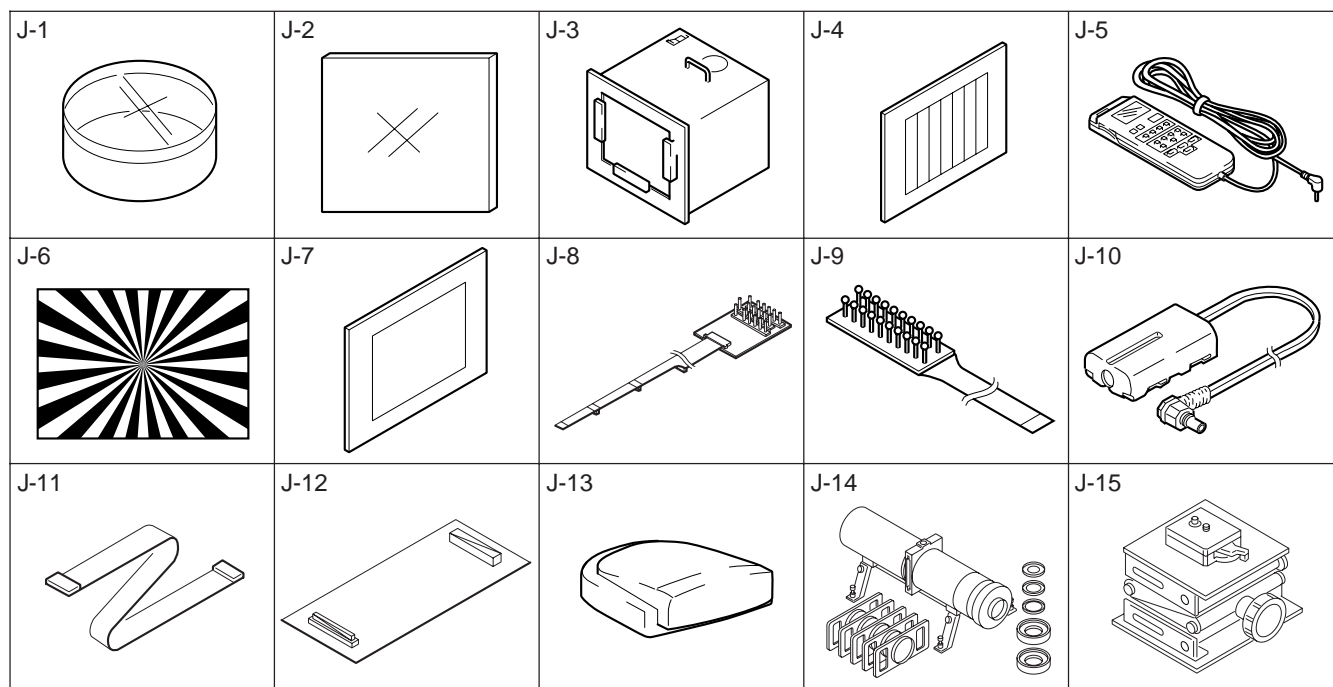


Fig. 5-1-1.

1-1-2. Preparations

Note 1: For details of how remove the cabinet and boards, refer to “2. DISASSEMBLY”.

Note 2: When performing only the adjustments, the lens block and boards need not be disassembled.

Note 3: 2.5 LCD model: DCR-TRV103/TRV110/TRV110E/TRV110P
3/3.5 LCD model: DCR-TRV203/TRV210/TRV210E/TRV310/
TRV310E/TRV310P/TRV315
TR model: DCR-TR7000/TR7000E/TR7100E

	MA board	CF board
2.5 LCD model	MA-354	CF-62
3/3.5 LCD model	MA-355	CF-63
TR model	MA-357	CF-65

- 1) Connect the equipment for adjustments according to Fig. 5-1-3, 4, 5.
- 2) The front panel block (MA-354/355/357 board, focus dial, microphone unit) must be assembled because the focus ring is used for adjustments.

Note 4: As removing the cabinet (R) (removing the VC-213 board CN911) means removing the lithium 3V power supply (CF-62/63/65 board BH001), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) has been removed, the self-diagnosis data, data on history of use (total drum rotation time, etc.) will be lost. Before removing, note down the self-diagnosis data and data on history use (data of page: 2, address: A2 to AA). (Refer to “SELF-DIAGNOSIS FUNCTION” for the self-diagnosis data, and to “5-4. Service Mode” for the data on the history use.)

Note 5: Setting the “Forced Camera Power ON” Mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the camera power to be turned on with the front panel block removed. After completing adjustments, be sure to exit the “Forced Camera Power ON Mode”.

Note 6: Exiting the “Forced Camera Power ON” Mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

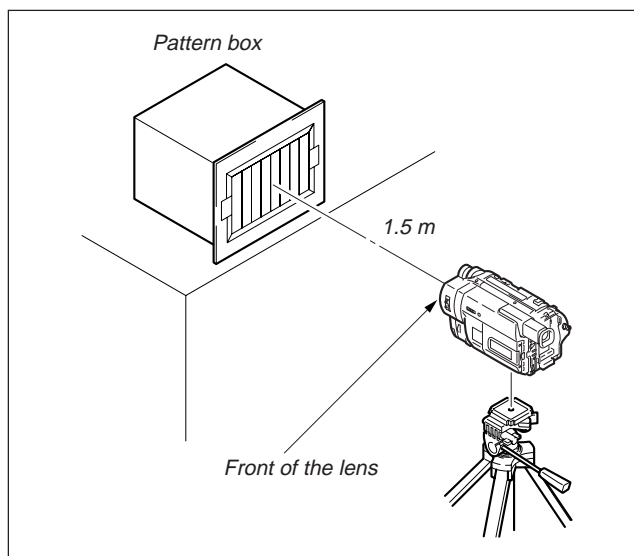


Fig. 5-1-2.

2.5 LCD MODEL (DCR-TRV103/TRV110/TRV110E/TRV110P)

Note 1 : Press the battery switch of the battery terminal using adhesive tape, etc.

Note 2 : 720H model : DCR-TRV103/TRV110/TRV110P

960H model : DCR-TRV110E

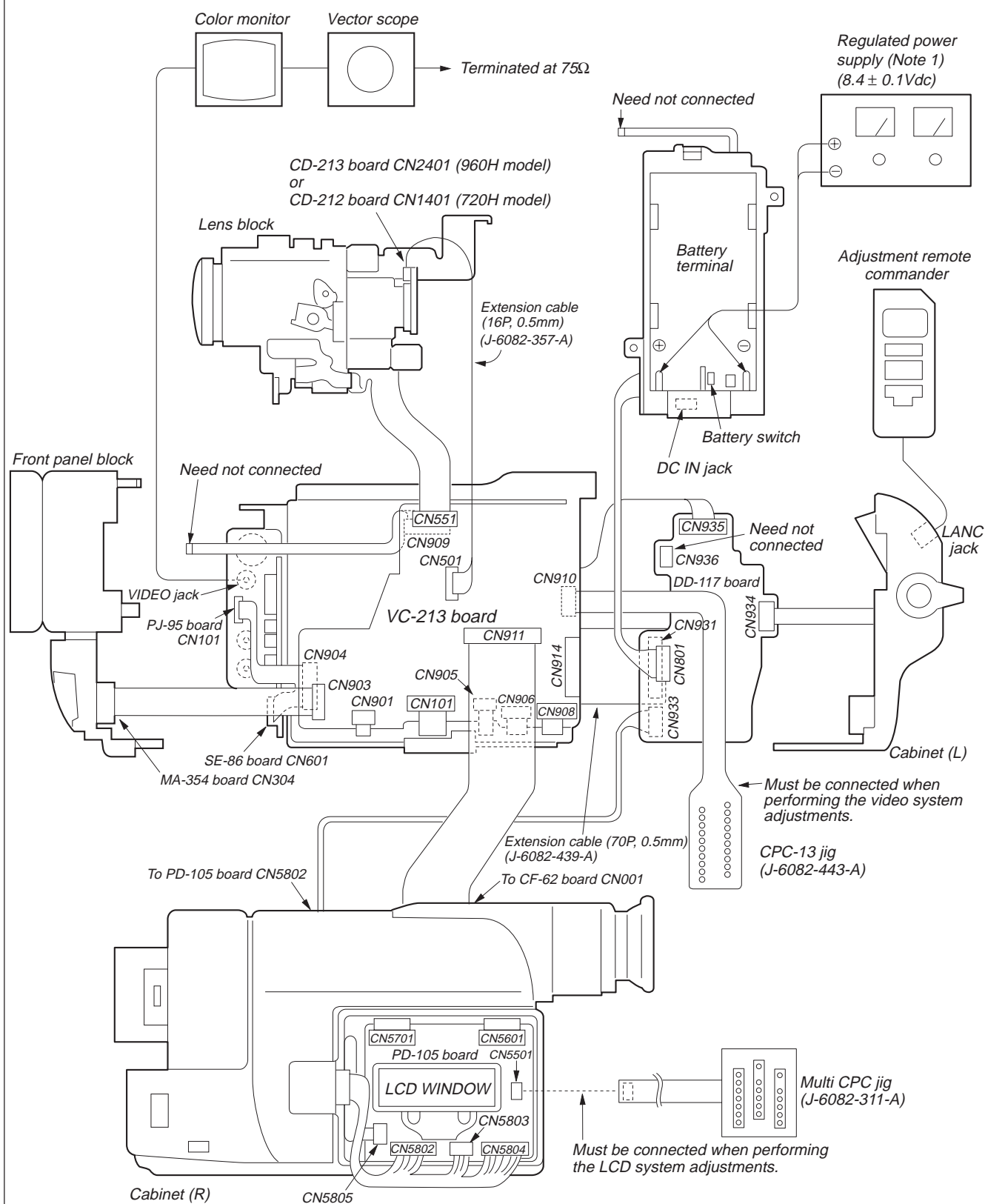


Fig. 5-1-3.

3/3.5 LCD MODEL (DCR-TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)

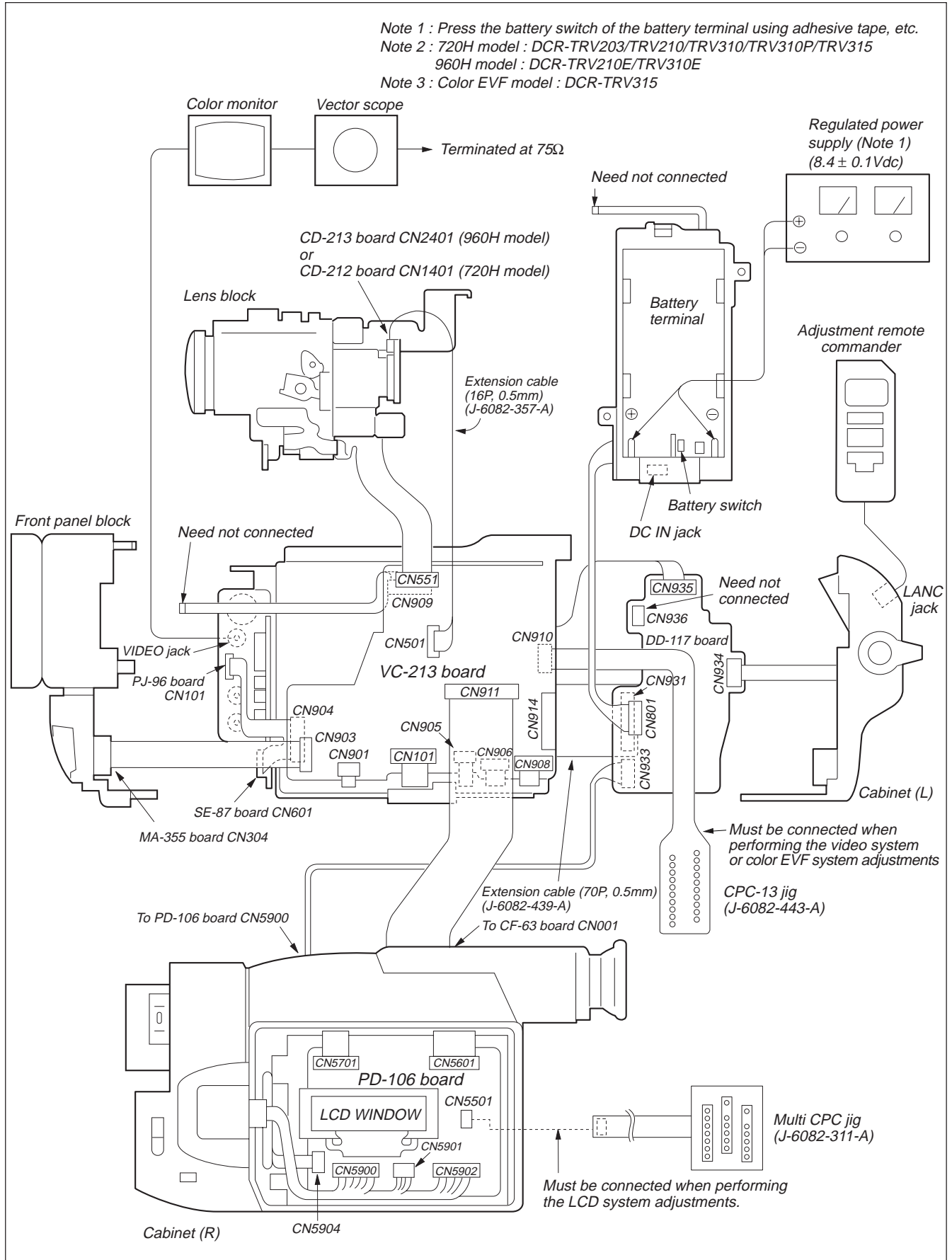


Fig. 5-1-4.

TR MODEL (DCR-TR7000/TR7000E/TR7100E)

Note 1 : Press the battery switch of the battery terminal using adhesive tape, etc.

Note 2 : 720H model : DCR-TR7000

960H model : DCR-TR7000E/TR7100E

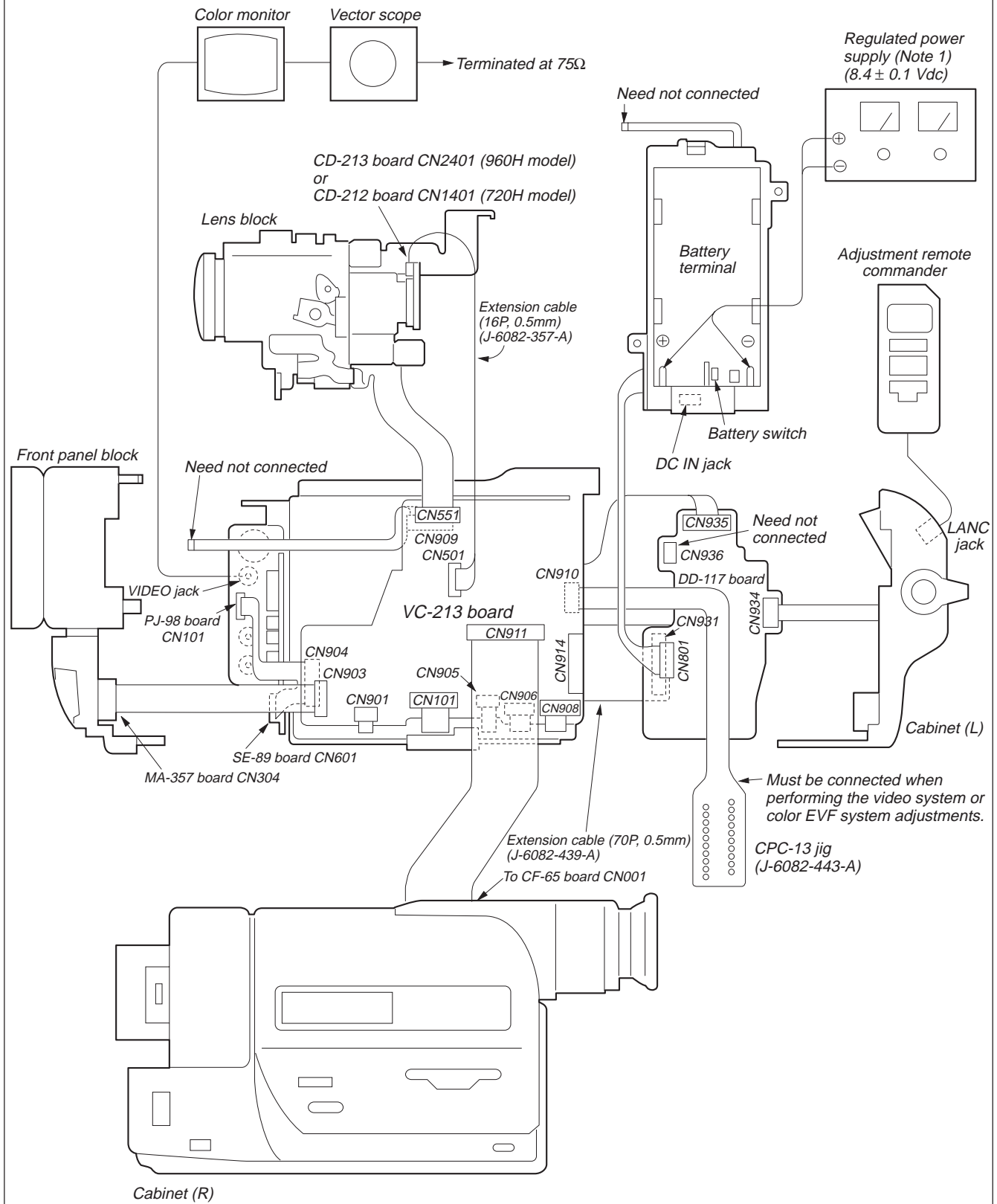


Fig. 5-1-5.

1-1-3. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

Note: TRV model : DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315

- | | | | |
|---|-----------|--|--------|
| 1. POWER switch (MA-354/355/357 board) | CAMERA | 8. FOCUS switch (MR-8500 block) | MANUAL |
| 2. NIGHT SHOT switch (Lens block) | OFF | 9. PROGRAM AE (CF-62/63/65 board) | Auto |
| 3. DEMO MODE (Menu display) | OFF | 10. BACK LIGHT (CF-62/63/65 board) | OFF |
| 4. DIGITAL ZOOM (Menu display) | OFF | 11. PICTURE EFFECT (CF-62/63/65 board) | OFF |
| 5. STEADY SHOT (Menu display) | OFF | 12. DIGITAL EFFECT (CF-62/63/65 board) | OFF |
| 6. DISPLAY (Menu display) (TRV model) | V-OUT/LCD | 13. 16 : 9 WIDE (MENU display) | OFF |
| 7. DISPLAY (CF-62/63 board) (TRV model) | ON | | |

2. Order of Adjustments

Basically carry out adjustments in the order given.

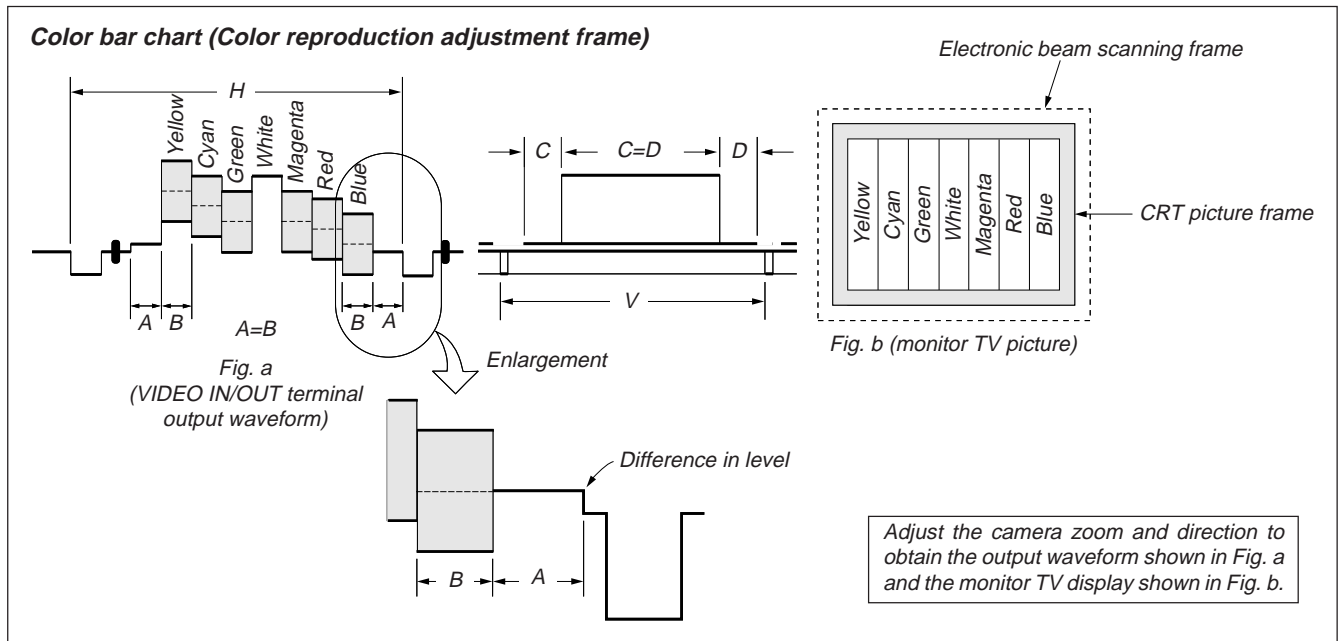


Fig.5-1-6.

3. Subjects

- 1) Color bar chart (Color reproduction adjustment frame)
When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-6. (Color reproduction adjustment frame)
- 2) Clear chart (Color reproduction adjustment frame)
Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
- 3) Flange back adjustment chart
Make the chart shown in Fig. 5-1-7 using A0 size (1189mm × 841mm) black and white vellum paper.

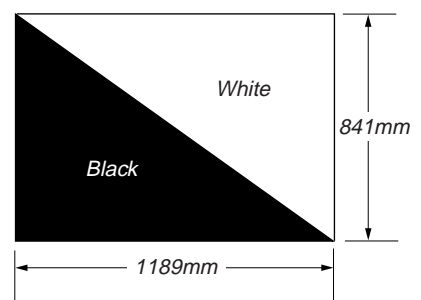


Fig. 5-1-7.

Note: Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

1-2. INITIALIZATION OF C, D, E, F PAGE DATA

1-2-1. INITIALIZATION OF C PAGE DATA

1. Initializing the C Page Data

Note: If the C page data has been initialized, “Modification of C Page Data” and following adjustments need to be performed again.

- 1) Servo and RF system adjustment
- 2) “Chroma BPF f_0 adjustment”, “S VIDEO OUT Y level adjustment” and “S VIDEO OUT chroma level adjustment” of the video system adjustments.

Adjusting Page	C
Adjusting Address	10 to DF

Initializing Method:

- 1) Select page: 0, address: 01, and set data: 80.
- 2) Select page: 3, address: 80, set data: 0C, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 80, and check that the data changes to “1C”.
- 4) Select page: 0, address: 01, and set data: 00.
- 5) Perform “Modification of C Page Data”.

2. Modification of C Page Data

If the C page data has been initialized, change the data of the “Fixed data-2” address shown in the following table by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
Note : If copy the data built in the different model, the camcorder may not operate.
- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of D Page data

- 1) Select page: 2, address: 00, and set data: 29.
- 2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjustment remote commander.

3. C Page Table

Note: Fixed data-1 : Initialized data. (Refer to “1. Initializing the C Page Data”.)

Fixed data-2 : Modified data. (Refer to “2. Modification of C Page Data”.)

Address	Initial value		Remark
	NTSC	PAL	
00 to 0F			
10	EE	EE	Switching position adj.
11	00	00	
12	00	00	
13	00	00	
14	Fixed data-1 (Initialized data)		
15			
16			
17			
18	25	25	AEQ adj.
19	25	25	
1A	Fixed data-1		
1B	25	25	AEQ adj.
1C	25	25	
1D	Fixed data-1		
1E	25	25	AGC center level adj.
1F	3E	3E	PLL f ₀ adj.
20	3E	3E	
21	CA	CA	APC adj.
22	99	99	LPF f ₀ adj.
23	Fixed data-1 (Initialized data)		
24			
25	88	88	S VIDEO OUT Y Level Adj.
26	E3	E3	S VIDEO OUT chroma level adj.
27	A1	A1	S VIDEO OUT chroma level adj.
28	Fixed data-1 (Initialized data)		
29			
2A			
2B	04	04	Chroma BPF f ₀ adj.
2C	Fixed data-1 (Initialized data)		
2D			
2E			
2F			
30			
31	Fixed data-2		
32	Fixed data-1 (Initialized data)		
33			
34	Fixed data-2		
35	Fixed data-1 (Initialized data)		
36			
37			
38	00	00	Emergency memory address
39	00	00	
3A	00	00	
3B	00	00	
3C	00	00	
3D	00	00	
3E	00	00	
3F	00	00	
40	00	00	

Address	Initial value		Remark
	NTSC	PAL	
41	00	00	Emergency memory address
42	00	00	
43	00	00	
44	Fixed data-1 (Initialized data)		
45			
46			
47	20	20	PLL f ₀ fine adj.
48	Fixed data-1 (Initialized data)		
49			
4A			
4B			
4C			
4D			
4E			
4F			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
5A			
5B			
5C			
5D			
5E			
5F			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
6A			
6B			
6C			
6D			
6E			
6F			
70			
71			
72			
73	03	03	APC adj.
74	Fixed data-1 (Initialized data)		
75			
76			

Address	Initial value		Remark
	NTSC	PAL	
77	Fixed data-1 (Initialized data)		
78			
79			
7A			
7B			
7C			
7D			
7E			
7F			
80			
81			
82			
83			
84			
85			
86			
87	Fixed data-2 (Modified data, copy the data built in the same model.)		
88			
89			
8A			
8B	Fixed data-1 (Initialized data)		
8C			
8D			
8E			
8F			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
9A			
9B			
9C			
9D			
9E			
9F			
A0			
A1			
A2			
A3	Fixed data-2		Fixed data-1 (Initialized data)
A4			
A5			
A6			
A7			
A8			
A9			
AA			
AB			
AC			

Address	Initial value		Remark
	NTSC	PAL	
AD	Fixed data-2		
AE	Fixed data-1 (Initialized data)		
AF			
B0			
B1			
B2			
B3			
B4			
B5			
B6			
B7			
B8			
B9			
BA			
BB			
BC			
BD			
BE			
BF			
C0			
C1			
C2			
C3			
C4			
C5			
C6			
C7			
C8			
C9			
CA			
CB			
CC			
CD			
CE			
CF			
D0			
D1			
D2			
D3			
D4			
D5			
D6			
D7			
D8			
D9			
DA			
DB			
DC			
DD			
DE			
DF			

Table. 5-1-2.

1-2-2. INITIALIZATION OF D PAGE DATA

1. Initializing the D Page Data

Note: If the D Page data has been initialized, “Modification of D Page Data” and following adjustments need to be performed again.

- 1) Color viewfinder system adjustments
- 2) LCD system adjustments
- 3) Battery end adjustments

Adjusting page	D
Adjusting Address	10 to 8F

Initializing Method:

- 1) Select page: 0, address: 01, and set data: 80.
- 2) Select page: 3, address: 80, set data: 0D, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 80, and check that the data changes to “1D”.
- 4) Select page: 0, address: 01, and set data: 00.
- 5) Perform “Modification of D Page Data”.

2. Modification of D Page Data

If the D Page data has been initialized, change the data of the “Fixed data-2” address shown in the following table by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
Note : If copy the data built in the different model, the camcorder may not operate.
- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of D Page data

- 1) Select page: 2, address: 00, and set data: 29.
- 2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjustment remote commander.

Note: If the following symptoms occur after completing of the “Modification of D page data” check that the data of the “Fixed data-2” addresses are model of the same destination.

- 1) The battery end mark on the LCD or viewfinder screen is flashing.
- 2) The power is short off so that unit cannot operate.

3. D Page Table

Note 1: Fixed data-1 : Initialized data. (Refer to “1. Initializing the D Page Data”.)
Fixed data-2 : Modified data. (Refer to “2. Modification of D Page Data”.)

Address	Initial value		Remark
	NTSC	PAL	
00 to 0F			
10	00	00	Test mode
11	Fixed data-1 (Initialized data)		
12			
13	Fixed data-2 (Modified data, copy the data built in the same model.)		
14			
15	Fixed data-1 (Initialized data)		
16			
17			

Address	Initial value		Remark
	NTSC	PAL	
18			Fixed data-2
19			Fixed data-1
1A			Fixed data-2
1B			(Modified data, copy the data built in the same model.)
1C			Fixed data-1
1D			(Initialized data)
1E			Fixed data-2
1F			Fixed data-1
20			Fixed data-2
21			Fixed data-1
22			(Initialized data)
23			
24			
25			
26			
27			Fixed data-2
28			(Modified data, copy the data built in the same model.)
29			Fixed data-1
2A			Fixed data-2
2B			
2C			Fixed data-1
2D			Fixed data-2
2E			(Modified data, copy the data built in the same model.)
2F			
30	90	90	Battery end adj.
31	98	98	
32	AC	AC	
33	B2	B2	
34	BA	BA	
35			Fixed data-1
36			Fixed data-2
37			Fixed data-1
38			(Initialized data)
39			
3A			
3B			
3C			
3D			
3E			
3F			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
4A			
4B			

Address	Initial value		Remark
	NTSC	PAL	
4C			Fixed data-1
4D			(Initialized data)
4E			
4F			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
5A			
5B			
5C			
5D			
5E			
5F			
60			
61			
62			
63			
64			
65			Fixed data-2
66			Fixed data-1
67			Fixed data-2
68			Fixed data-1
69			(Initialized data)
6A			
6B			
6C			
6D			
6E			Fixed data-2
6F			(Modified data, copy the data built in the same model.)
70			
71	90	90	White balance adj. (EVF)
72	60	60	
73			Fixed data-1
74			Fixed data-2
75	70	70	VCO adj. (EVF)
76	B0	B0	Backlight consumption current adj. (EVF)
77			Fixed data-1
78			Fixed data-2
79			Fixed data-1
7A	60	60	Bright adj. (EVF)
7B	70	70	Contrast adj. (EVF)
7C	90	90	Backlight consumption current adj. (EVF)
7D			Fixed data-1
7E			(Initialized data)
7F			

Address	Initial value		Remark
	NTSC	PAL	
80	80/98	80/98	White balance adj. (LCD) (Note2)
81	80/7B	80/7B	White balance adj. (LCD) (Note2)
82	88/80	88/80	D range adj. (LCD) (Note2)
83	90/89	90/89	V-COM level adj. (LCD) (Note2)
84	80	80	VCO adj. (LCD)
85	70/80	70/80	V-COM adj. (LCD) (Note2)
86	Fixed data-1		
87			
88			
89			
8A	60/84	60/84	Bright adj. (LCD) (Note2)
8B	78	78	Color adj. (LCD)
8C	80/8D	80/8D	Contrast adj. (LCD) (Note2)
8D	Fixed data-1 (Initialized data)		
8E			
8F			

Note 2: LCD TYPE S / LCD TYPE C

LCD TYPE S model: DCR-TRV103/TRV110/TRV110E/
TRV110P/TRV203/TRV210/TRV210E/
TRV310E/TRV315

LCD TYPE C model: DCR-TRV310/TRV310P

Table. 5-1-3.

1-2-3. INITIALIZATION OF E, F PAGE DATA

1. Initializing the E, F Page Data

Note: If the E, F page data has been initialized, “Modification of E, F Page Data” and following adjustments need to be performed again.

- 1) Camera system adjustments
- 2) “Hi8/standard 8 mm switching position adjustment” and “CAP FG offset adjustment” of the servo & RF system adjustments
- 3) Video system adjustments
- 4) IR transmitter adjustments
- 5) Audio system adjustments

Adjusting Page	F
Adjusting Address	00 to FF
Adjusting Page	E
Adjusting Address	00 to FF

Initializing Method:

- 1) Select page: 0, address: 01, and set data: 80.
- 2) Select page: 6, address: 00, and set data: 55 (NTSC) or data: 51 (PAL).
- 3) Select page: 6, address: 01, set data: 55 (NTSC) or data: 51 (PAL), and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 6, address: 02, and check that the data is “01”.
- 5) Select page: 0, address: 01, and set data: 00.
- 6) Perform “Modification of E, F Page Data”.

2. Modification of E, F Page Data

If the E, F page data has been initialized, change the data of the “Fixed data-2” address shown in the following tables by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
Note : If copy the data built in the different model, the camcorder may not operate.
- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of F, E Page data

- 1) Select page: 2, address: 00, and set data: 29.
- 2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjustment remote commander.

3. F Page table

Note: Fixed data-1 : Initialized data. (Refer to “1. Initializing the E, F Page Data”.)

Fixed data-2 : Modified data. (Refer to “2. Modification of E, F Page Data”.)

Address	Initial value		Remark
	NTSC	PAL	
00 to 0F			
10	00	00	Emergency memory address
11	00	00	
12	00	00	
13	00	00	
14	00	00	
15	00	00	
16	00	00	
17	00	00	
18	00	00	
19	00	00	
1A	00	00	Fixed data-2
1B	00	00	
1C			
1D			
1E			
1F			
20			
21			
22			
23			
24			Fixed data-1 (Initialized data)
25			
26			
27			
28			
29			
2A			
2B			
2C			
2D			
2E	43	43	AGC gain calibration adj.
2F	3F	3F	
30	AB	AB	
31	4B	4B	
32	2B	2B	AWB standard data input
33	00	00	
34	54	54	
35	00	00	
36			Fixed data-1 (Initialized data)
37			
38	1C	1C	Flange back adj.
39	03	03	
3A	25	25	
3B	24	24	
3C	11	11	
3D	05	05	
3E	0A	0A	Hi8/standard 8 mm switching position adj.
3F	00	00	
40	A0	A0	27MHz/36MHz origin oscillation adj.

Address	Initial value		Remark
	NTSC	PAL	
41	80	80	Hi8/standard 8 mm 14MHz origin osc. adj.
42	80	80	BBI PLL adj.
43			Fixed data-1
44			(Initialized data)
45			
46			
47	88	88	HALL adj.
48	6A	6A	
49			Fixed data-2
4A			Fixed data-1
4B			Fixed data-2
4C			Fixed data-1
4D			(Initialized data)
4E	30	30	Color reproduction adj.
4F			Fixed data-1
50	37	37	Color reproduction adj.
51			Fixed data-1
52			(Initialized data)
53			
54	94	94	Auto white balance adj.
55	62	62	
56	3C	3C	IRIS IN/OUT adj.
57	44	44	
58			Fixed data-1
59			(Initialized data)
5A	2A	2A	Flange back adj.
5B	00	00	
5C	19	19	
5D	00	00	
5E	37	37	
5F	82	82	Angular velocity sensor sensitivity data check
60	80	80	
61	83	83	CAP FG offset adj.
62	7A	7A	Hi8/standard 8 mm AFM 1.5MHz deviation adj.
63	8D	8D	Hi8/standard 8 mm AFM 1.7MHz deviation adj.
64	7A	7A	Hi8/standard 8 mm AFM BPF f ₀ adj.
65			Fixed data-1
66	41	41	IR video deviation adj.
67	33	33	IR audio deviation adj.
68	C7	C7	IR video carrier freq. adj.
69	6B	6B	Hi8/standard 8 mm Y level adj.
6A	40	40	Hi8/standard 8 mm AFC f ₀ adj.
6B	9A	9A	Hi8/standard 8 mm chroma level adj.
6C			Fixed data-1
6D			(Initialized data)
6E	60	60	Hi8/standard 8 mm RP Filter f ₀ adj.
6F			Fixed data-1
70			(Initialized data)
71			
72			
73			

Address	Initial value		Remark
	NTSC	PAL	
74	Fixed data-1 (Initialized data)		
75			
76			
77			
78			
79			
7A			
7B			
7C			
7D			
7E			
7F			
80			
81			
82			
83			
84			
85			
86	Fixed data-2		
87	Fixed data-1 (Initialized data)		
88			
89			
8A	Fixed data-2 (Modified data, copy the data built in the same model.)		
8B			
8C			
8D	Fixed data-1 (Initialized data)		
8E			
8F			
90			
91			
92			
93			
94	Fixed data-2		
95	Fixed data-1 (Initialized data)		
96			
97			
98			
99			
9A			
9B			
9C			
9D			
9E			
9F			
A0			
A1			
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			

Address	Initial value		Remark
	NTSC	PAL	
AA			Fixed data-1 (Initialized data)
AB			
AC			
AD			
AE			
AF			
B0			
B1			
B2			
B3			
B4			
B5			
B6			
B7			
B8			
B9			
BA			
BB			
BC			
BD			
BE			
BF			
C0			
C1			
C2			
C3			
C4			
C5			
C6			
C7			
C8			
C9			
CA			
CB			
CC			
CD			
CE			
CF			
D0			
D1			
D2			Fixed data-2
D3			Fixed data-1 (Initialized data)
D4			
D5			
D6			
D7			
D8			Fixed data-2 (Modified data, copy the data built in the same model.)
D9			
DA			
DB			Fixed data-1 (Initialized data)
DC			
DD			Fixed data-2
DE			Fixed data-1 (Initialized data)
DF			

Address	Initial value		Remark
	NTSC	PAL	
E0	Fixed data-1 (Initialized data)		
E1			
E2	Fixed data-2		
E3	Fixed data-1 (Initialized data)		
E4			
E5			
E6			
E7			
E8			
E9	Fixed data-2		
EA	Fixed data-1 (Initialized data)		
EB			
EC			
ED			
EE			
EF			
F0			
F1			
F2	Fixed data-2		
F3	Fixed data-1 (Initialized data)		
F4			
F5			
F6			
F7			
F8	00	00	Flange back adj.
F9	00	00	
FA	00	00	
FB	FD	FD	Color reproduction adj.
FC	F3	F1	
FD	Fixed data-1 (Initialized data)		
FE			
FF			

Table. 5-1-4.

4. E Page Table

Note: Fixed data-1 : Initialized data. (Refer to “1. Initializing the E, F Page Data”.)
Fixed data-2 : Modified data. (Refer to “2. Modification of E, F Page Data”.)

Address	Remark
00	Fixed data-1 (Initialized data)
01	
02	
03	
04	
05	
06	
07	
08	
09	
0A	
0B	
0C	
0D	
0E	
0F	
10	
11	Fixed data-2 (Modified data, copy the data built in the same model.)
12	
13	Fixed data-1 (Initialized data)
14	
15	Fixed data-2
16	Fixed data-1 (Initialized data)
17	
18	
19	
1A	
1B	
1C	
1D	
1E	
1F	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
2A	Fixed data-2
2B	Fixed data-1 (Initialized data)
2C	
2D	
2E	
2F	
30	
31	

Address	Remark
32	Fixed data-1 (Initialized data)
33	
34	
35	
36	
37	
38	
39	
3A	
3B	
3C	
3D	
3E	
3F	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
4A	
4B	
4C	
4D	
4E	Fixed data-2
4F	Fixed data-1 (Initialized data)
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
5A	
5B	
5C	
5D	
5E	
5F	
60	
61	
62	
63	
64	
65	
66	
67	
68	

Address	Remark
69	Fixed data-1 (Initialized data)
6A	
6B	
6C	
6D	
6E	
6F	
70	
71	
72	
73	
74	
75	
76	
77	
78	
79	
7A	
7B	
7C	
7D	
7E	
7F	
80	
81	
82	
83	
84	
85	
86	
87	
88	Fixed data-2 (Modified data, copy the data built in the same model.)
89	
8A	
8B	Fixed data-1 (Initialized data)
8C	
8D	
8E	
8F	
90	
91	
92	
93	
94	
95	
96	
97	
98	
99	
9A	
9B	
9C	
9D	
9E	
9F	

Address	Remark
A0	Fixed data-1 (Initialized data)
A1	
A2	
A3	
A4	
A5	
A6	
A7	
A8	
A9	
AA	
AB	
AC	
AD	
AE	
AF	
B0	
B1	
B2	
B3	
B4	
B5	
B6	
B7	
B8	
B9	
BA	
BB	
BC	
BD	
BE	
BF	
C0	
C1	
C2	
C3	Fixed data-2 (Modified data, copy the data built in the same model.)
C4	
C5	Fixed data-1 (Initialized data)
C6	
C7	
C8	
C9	
CA	
CB	
CC	
CD	
CE	
CF	
D0	
D1	
D2	
D3	
D4	
D5	

Address	Remark
D6	Fixed data-1 (Initialized data)
D7	
D8	
D9	
DA	
DB	
DC	
DD	
DE	
DF	
E0	
E1	
E2	
E3	
E4	
E5	
E6	
E7	
E8	
E9	
EA	
EB	
EC	
ED	
EE	
EF	
F0	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
F9	
FA	
FB	
FC	
FD	
FE	
FF	

Table. 5-1-5.

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, Check that the specified values of “27/36MHz Origin Oscillation Adjustment”, “S VIDEO OUT Y level Adjustment” and “S VIDEO OUT C level Adjustment” of “VIDEO SYSTEM ADJUSTMENT” are satisfied.

1. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and offset.

Subject	Not required
Measurement Point	Display data of page 1
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	47, 48
Specified Value	88 to 8C during IRIS OPEN 15 to 19 during IRIS CLOSE

Note: Displayed data of page 1 of the adjustment remote commander.

1 : 00 : XX
 └─── Display data

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 01, set data: 6D, and press the PAUSE button of the adjustment remote commander. (The HALL adjustment is performed and the adjustment data is stored in page: F, address: 47 and 48.)
- 3) Select page: 6, address: 02, and check that the data is “01”.
- 4) Select page: 6, address: 01, set data: 00, and press the PAUSE button.

Checking method:

- 1) Select page: 0, address: 03, and set data: 03.
- 2) Select page: 6, address: 01, set data: 01, and press the PAUSE button.
- 3) Select page: 1, and check that the display data (Note) during IRIS OPEN satisfies the specified value.
- 4) Select page: 6, address: 01, set data: 03, and press the PAUSE button.
- 5) Select page: 1, and check that the display data during IRIS CLOSE satisfies the specified value.

Processing after Completing Adjustments

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Select page: 0, address: 01, and set data: 00.
- 3) Select page: 0, address: 03, and set data: 00.

2. Flange Back Adjustment (Using Minipattern Box)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for the minipattern box (Note 1)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	38 to 3D, 5A to 5E, F8 to FA

Note 1: Dark Siemens star chart.

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Preparation for adjustment

The minipattern box is installed as shown in the following figure.

Note : The attachment lenses are not used.

Specified voltage: The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

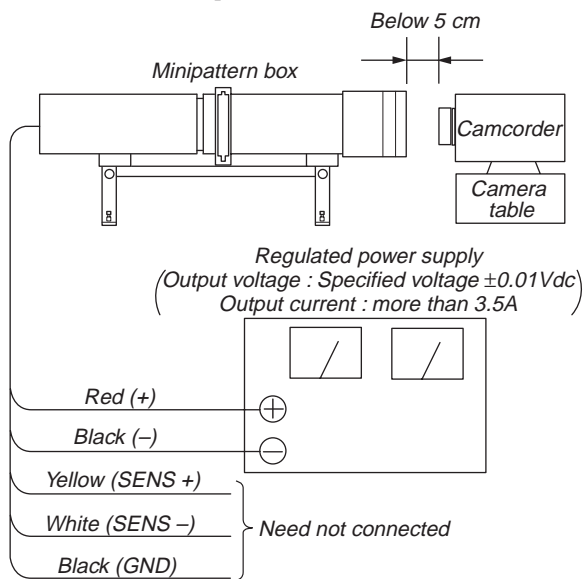


Fig. 5-1-8.

Adjusting method:

- 1) Install the minipattern box so that the distance between it and the front of the lens of the camcorder is less than 5 cm.
- 2) Make the height of the minipattern box and the camcorder equal.
- 3) Check that the output voltage of the regulated power supply is the specified voltage $\pm 0.01\text{Vdc}$.
- 4) Check that at both the zoom lens TELE end and WIDE end, the center of the Siemens star chart and center of the exposure screen coincide.
- 5) Select page: 0, address: 01, and set data: 01.
- 6) Check that the data of page: F, address: 38 to 3D, 5A to 5E, F8 to FA is the initial value (See table below).

Address	Data	Address	Data
38	1C	5B	00
39	03	5C	19
3A	25	5D	00
3B	24	5E	37
3C	11	F8	00
3D	05	F9	00
5A	2A	FA	00

- 7) Select page: 6, address: 02, and check that the data is "00".
- 8) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
- 9) Select page: 6, address: 01, set data: 27, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 38 to 3D, 5A to 5E, F8 to FA.)
- 10) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments

- 1) Select page: 0, address: 01, and set data: 00.
- 2) Turn OFF the main power supply (8.4V).
- 3) Perform "Flange Back Check".

3. Flange Back Adjustment (Using Flange Back Adjustment Chart Subject More Than 500 m Away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

3-1. Flange Back Adjustment(1)

Subject	Flange back adjustment chart (2.0 m from the front of the lens) (Luminance: 350 ± 50 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	38 to 3D, 5A to 5E, F8 to FA

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Adjusting method:

- 1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Check that the data of page: F, address: 38 to 3D, 5A to 5E, F8 to FA is the initial value (See table below).

Address	Data	Address	Data
38	1C	5B	00
39	03	5C	19
3A	25	5D	00
3B	24	5E	37
3C	11	F8	00
3D	05	F9	00
5A	2A	FA	00

- 4) Select page: 6, address: 02, and check that the data is "00".
- 5) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
- 6) Select page: 6, address: 01, set data: 15, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 38 to 3D, 5A to 5E, F8 to FA.)
- 7) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments

- 1) Turn OFF the main power supply (8.4V).
- 2) Perform "Flange Back Adjustment (2)".

3-2. Flange Back Adjustment (2)

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	38 to 3D, 5A to 5E, F8 to FA

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Adjusting method:

- 1) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 6, address: 02, and check that the data is "00".
- 4) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
- 5) Place a ND filter on the lens so that the optimum image is obtain.
- 6) Select page: 6, address: 01, set data: 29, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 38 to 3D, 5A to 5E, F8 to FA.)
- 7) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments

- 1) Select page: 0, address: 01, and set data: 00.
- 2) Turn OFF the main power supply (8.4V).
- 3) Perform "Flange Back Check".

4. Flange Back Check

Subject	Siemens star (2.0 m from the front of the lens) (Luminance : approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Checking method:

- 1) Place the Siemens star 2.0m from the front of the lens.
- 2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
- 3) Select page: 6, address: 40, and set data: 02.
- 4) Select page: 6, address: 41, and set data: 01.
- 5) Shoot the Siemens star with the zoom TELE end.
- 6) Turn on the auto focus.
- 7) Check that the lens is focused (Note).
- 8) Select page: 6, address: 21, and set data: 10.
- 9) Shoot the Siemens star with the zoom WIDE end.
- 10) Observe the TV monitor and check that the lens is focused.

Note: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjustment remote commander.

- 1) Select page: 0, address: 03, and set data: 0F.
- 2) Page 1 shows the state of the focus.

1 : 00 : XX

{ Odd: Focused
Even: Unfocused

Processing after Completing Adjustments

- 1) Select page: 6, address: 21, and set data: 00.
- 2) Select page: 6, address: 40, and set data: 00.
- 3) Select page: 6, address: 41, and set data: 00.
- 4) Select page: 0, address: 03, and set data: 00.

5. Picture Frame Setting

Subject	Color bar chart (Color reproduction adjustment frame) (1.5m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, E=F

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Setting method:

- 1) Adjust the zoom and the camera direction, and set to the specified position.
- 2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".

Check on the oscilloscope

1. Horizontal period

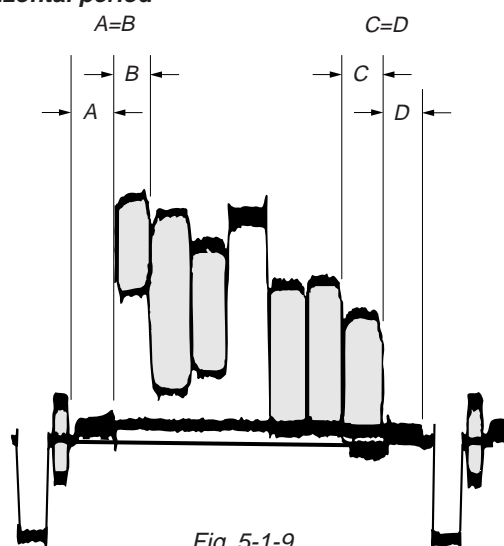


Fig. 5-1-9.

2. Vertical period

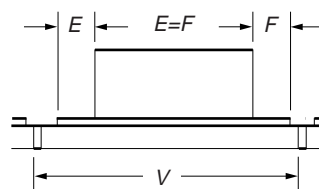


Fig. 5-1-10.

Check on the monitor TV (Underscanned mode)

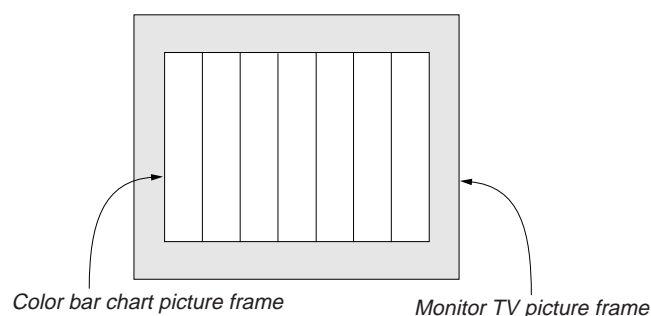


Fig. 5-1-11.

6. AGC Gain Calibration Adjustment

Subject	Clear chart (Color reproduction adjustment frame)
Measurement Point	Display data of page 1 (Note)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	2E, 2F, 30, 31
Specified Value	Data1 : 0196 to 0283 Data2 : 0C97 to 13F4

Note: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX

└─── Display data

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 01, set data: 71, and press the PAUSE button of the adjustment remote commander.
(The AGC gain calibration adjustment is performed and the adjustment data is stored in page: F, address: 2E to 31.)
- 3) Select page: 6, address: 02, and check that the data is "01".
- 4) Select page: 6, address: 01, set data: 00, and press the PAUSE button.

Checking method:

- 1) Select page: 0, address: 03, and set data: 25.
- 2) Select page: 6, address: 9A, and set data: 03.
- 3) Select page: 6, address: 01, set data: 9B, and press the PAUSE button.
- 4) Select page: 6, address: 02, and check that the data is "01".
- 5) Select page: 1, and check that the display data (Note) satisfies the specified value of data1.
- 6) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 7) Select page: 6, address: 9A, and set data: 99.
- 8) Select page: 6, address: 01, set data: 9B, and press the PAUSE button.
- 9) Select page: 6, address: 02, and check that the data is "01".
- 10) Select page: 1, and check that the display data (Note) satisfies the specified value of data2.

Processing after Completing Adjustments

- 1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button.
- 2) Select page: 6, address: 9A, and set data: 00.
- 3) Select page: 0, address: 01, and set data: 00.
- 4) Select page: 0, address: 03, and set data: 00.

7. Color Reproduction Adjustment

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	4E, 50, FB, FC
Specified Value	All color luminance points should settle within each color reproduction frame.

Note: NTSC 720H model: DCR-TR7000/TRV103/TRV110/TRV110P/
TRV203/TRV210/TRV310/TRV310P/TRV315
PAL 960H model: DCR-TR7000E/TR7100E/TRV110E/TRV210E/
TRV310E

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Adjusting method:

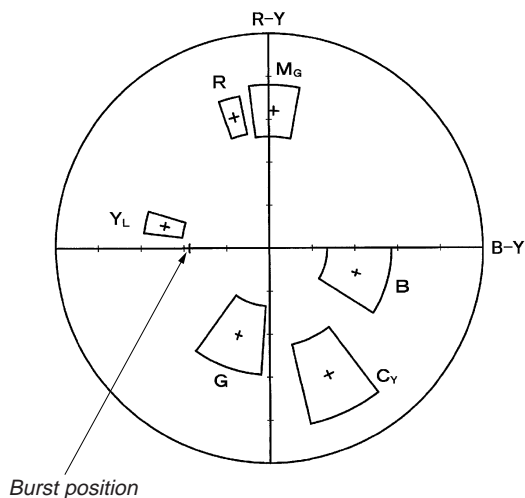
- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: E1, set data: 1B, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: F, address: 27, set data: 3F, and press the PAUSE button.
- 4) Select page: 6, address: 01, set data: 3D, and press the PAUSE button.
- 5) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
- 6) Change the data of page: F, address: 4E, 50, FB and FC, and settle each color luminance point in each color reproduction frame.

Note: Be sure to press the PAUSE button of the adjustment remote commander before changing the addresses. If not, the new data will not be written to the memory.

Processing after Completing Adjustments

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 2) Select page: F, address: E1, set data: 20, and press the PAUSE button.
- 3) Select page: 0, address: 01, and set data: 00.

NTSC 720H model



PAL 960H model

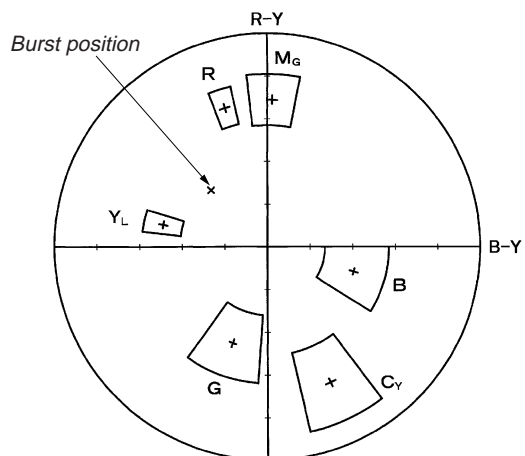


Fig. 5-1-12.

8. IRIS IN/OUT Adjustment

For the unit to judge if the white balance is indoors or outdoors in auto white balance operations, measure the light level and write it in the EEPROM.

If the level is not correct, the white balance will not be accurate.

Subject	Clear chart (Color reproduction adjustment frame)
Measurement Point	DDS display of EVF or LCD or TV monitor (Note)
Measuring Instrument	
Adjustment Page	F
Adjustment Address	56, 57

Note: The right four digits of the DDS display data of EVF or LCD or TV monitor.

CAM 00 00 00
 CAM 00 XX XX
 └─ Lower two digits
 └─ Upper two digits

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 0, address: 03, and set data: 06.
- 3) Select page: D, address: 11, set data: 02, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 6, address: 40, and set data: 02.
- 5) Select page: 6, address: 01, set data: 0B, and press the PAUSE button.
- 6) Read the DDS display data (Note), and take the upper two digits as D_1 and the lower two as D_2 .
- 7) Convert D_1 to decimal notation, and obtain D_1' . (Refer to Table 5-4-1. "Hexadecimal - decimal conversion table" of "5-4. Service Mode".)
- 8) Calculate D_3' using the following equations. (Equations 1 and 2 are for decimal notation calculation).
 When $D_2 \geq D_0$

$$D_3' = D_1' - 21 \quad \text{Equation 1}$$

 When $D_2 < D_0$

$$D_3' = D_1' - 22 \quad \text{Equation 2}$$
- 9) Convert D_3' to hexadecimal notation, and obtain D_3 .
- 10) Select page: F, address: 56, set data: D_3 , and press the PAUSE button.
- 11) Select page: 6, address: 01, set data: 09, and press the PAUSE button.
- 12) Read the DDS display data (Note), and take the upper two digits as D_4 and the lower two as D_5 .
- 13) Convert D_4 to decimal notation, and obtain D_4' . (Refer to Table 5-4-1. "Hexadecimal - decimal conversion table" of "5-4. Service Mode".)
- 14) Calculate D_6' using the following equations. (Equations 3 and 4 are for decimal notation calculation).
 When $D_5 \geq F_0$

$$D_6' = D_4' - 13 \quad \text{Equation 3}$$

 When $D_5 < F_0$

$$D_6' = D_4' - 14 \quad \text{Equation 4}$$
- 15) Convert D_6' to hexadecimal notation, and obtain D_6 .
- 16) Select page: F, address: 57, set data: D_6 , and press the PAUSE button.

Processing after Completing Adjustments

- 1) Select page: D, address: 11, set data: 00, and press the PAUSE button.
- 2) Select page: 0, address: 01, and set data: 00.
- 3) Select page: 0, address: 03, and set data: 00.
- 4) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 5) Select page: 6, address: 40, and set data: 00

9. Auto White Balance Standard Data Input

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	32 to 35

Note 1: This adjustment should be carried out upon completion of “6. Color Reproduction Adjustment”.

Note 2: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Wait for 2 seconds.
- 3) Select page: 6, address: 01, set data: 11, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 6, address: 01, set data: 0D, and press the PAUSE button.
(When the standard data is take in, the data will be automatically input to page: F, address: 32 to 35.)
- 5) Select page: 6, address: 02, and check that the data is “01”.
- 6) Perform “Auto White Balance Adjustment”.

Processing after Completing Adjustments

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 2) Select page: 0, address: 01, and set data: 00.

10. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.

If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Display data of page 1 (Note2)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	54, 55
Specified Value	720H model R ratio: 2BC0 to 2C40 B ratio: 5F40 to 5FC0 960H model R ratio: 2C40 to 2CC0 B ratio: 5D40 to 5DC0

Note 1: Perform “Auto White Balance Standard Data Input” before this adjustment.

Note 2: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX
 Display data

Note 3: 720H model: DCR-TR7000/TRV103/TRV110/TRV110P/TRV203/TRV210/TRV310/TRV310P/TRV315
960H model: DCR-TR7000E/TRV100E/TRV110E/TRV210E/TRV310E

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Adjusting method:

- 1) Place the C14 filter for color temperature correction on the lens.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: E, address: 88 to 8B, and note down the data of each address.
- 4) Input the following data to page: E, addresses: 88 to 8B.

Address		88	89	8A	8B
Data	720H model	2C	00	5F	80
	960H model	2C	80	5D	80

Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

- 5) Select page: 6, address: 01, set data: A7, and press the PAUSE button.
- 6) Select page: 6, address: 01, set data: A5, and press the PAUSE button.
(The auto white balance adjustment is performed and the adjustment data is stored in page: F, address: 54 and 55.)
- 7) Select page: 6, address: 02, and check that the data is “01”.
- 8) Select page: 6, address: 01, set data: 3F, and press the PAUSE button.
- 9) Select page: 0, address: 03, and set data: 04.
- 10) Select page: 1, and check that the display data (Note2) satisfies the R ratio specified value.
- 11) Select page: 0, address: 03, and set data: 05.
- 12) Select page: 1, and check that the display data (Note2) satisfies the B ratio specified value.
- 13) Select page: E, address: 88 to 8B, and input the data noted down at step 3).

Note: After setting each data, be sure to press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments

- 1) Select page: 0, address: 01, and set data: 00.
- 2) Select page: 0, address: 03, and set data: 00.
- 3) Select page: 6, address: 01, set data: 00, and press the PAUSE button.

11. White Balance Check

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 5-1-13. A to C

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF

Checking method:

- 1) Check that the lens is not covered with either filter.
- 2) Select page: 6, address: 01, set data: 0F, and press the PAUSE button of the adjustment remote commander.
- 3) Check that the center of the white luminance point is within the circle shown Fig. 5-1-13. (A).
- 4) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 5) Select page: 6, address: 01, set data: 23, and press the PAUSE button.
- 6) Place the C14 filter on the lens.
- 7) Check that the center of the white luminance point settles in the circle shown Fig. 5-1-13. (B).
- 8) Remove the C14 filter, and place the ND filter 1.3 (1.0 +0.3) on the lens.
- 9) Check that the white luminance point stopped moving, and then remove the ND filter 1.3.
- 10) Check that the center of the white luminance point settles within the circle shown Fig. 5-1-13. (C).

Processing after Completing Adjustments

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.

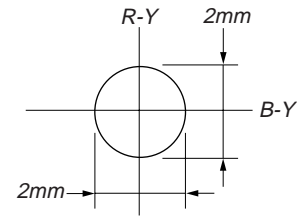


Fig. 5-1-13. (A)

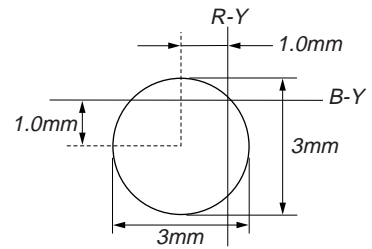


Fig. 5-1-13. (B)

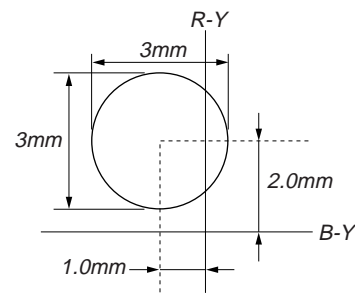


Fig. 5-1-13. (C)

12. Angular Velocity Sensor Sensitivity Data check

- This adjustment is performed only when replacing the angular velocity sensor.
Although this adjustment need not be performed when the circuit is damaged, etc., check the operations.
- Note down the sensitivity displayed on the angular velocity sensor of the repair parts. At this time, note down also to which board it was attached to.
Be sure to check because if attached incorrectly, the screen will vibrate up and down or left and right during hand-shake correction operations.

Precautions on the Parts Replacement

There are two types of repair parts.

Type A ENC03JA

Type B ENC03JB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Adjustment Page	F
Adjustment Address	5F, 60

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 5F and check that the data is "82".
- 3) Select page: F, address: 60 and check that the data is "80".

Processing after Completing Adjustments

- 1) Select page: 0, address: 01, and set data: 00.
- 2) Check that the steady shot operations have been performed normally.

1-4. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS (DCR-TR7000/TR7000E/TR7100E/TRV315)

Note 1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note 2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

[Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN910 of the VC-213 board.

Connect the Measuring Instruments via the CPC-13 jig (J-6082-443-A).

The following table shows the Pin No. and signal name of CN910.

Pin No.	Signal Name	Pin No.	Signal Name
1	SWP	11	EVF VCO
2	AFC F0	12	EVF VG
3	BPF MONI	13	DV RF SWP
4	RF AGC IN	14	RF IN
5	PB RF	15	CAP FG
6	REG GND	16	RF MON
7	RF AGC OUT	17	TMS
8	VC RF SWP	18	TCK
9	EVF BL	19	TDO
10	EVF BL 4.6V	20	TDI

Table 5-1-9.

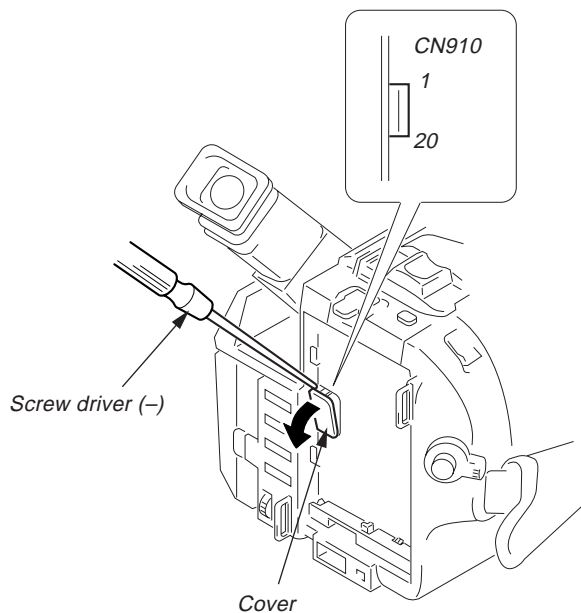


Fig. 5-1-14

1. EVF Initial Data Input

Mode	Camera
Subject	Arbitrary
Adjustment Page	D
Adjustment Address	70 to 76, 78 to 7C

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, and input the data in the following table.
Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
- 3) Select page: 0, address: 01, and set data: 00.

Address	Data	Remark
70	7A	Fixed data
71	90	White balance adj.
72	60	White balance adj.
73	48	Fixed data
74	5A	Fixed data
75	70	VCO adj.
76	B0	Backlight consumption current adj.
78	D1	Fixed data
79	AC	Fixed data
7A	60	Bright adj.
7B	70	Contrast adj.
7C	90	Backlight consumption current adj.

2. VCO Adjustment (VF-126 board)

Set the VCO free-run frequency. If deviated, the EVF screen will be blurred.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑪ of CN910 (EVF VCO) on VC-213 board
Measuring Instrument	Oscilloscope (DC range)
Adjustment Page	D
Adjustment Address	75
Specified Value	A=1.8 ± 0.1V

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Check the GND level of the oscilloscope.
- 3) Select page: D, address: 75, change the data and set the VCO output voltage (A) to the specified value.
- 4) Press the PAUSE button.
- 5) Select page: 0, address: 01, and set data: 00.

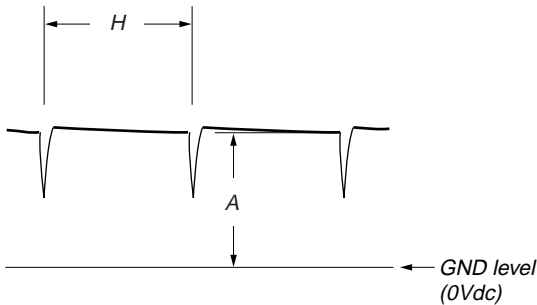


Fig. 5-1-15.

3. Bright Adjustment (VF-126 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑫ of CN910 (EVF VG) on VC-213 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7A
Specified Value	A=7.15 ± 0.1V

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 22, set data: 02, and press the PAUSE button.
- 4) Select page: D, address: 7A, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
- 5) Press the PAUSE button.
- 6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 8) Select page: 0, address: 01, and set data: 00.

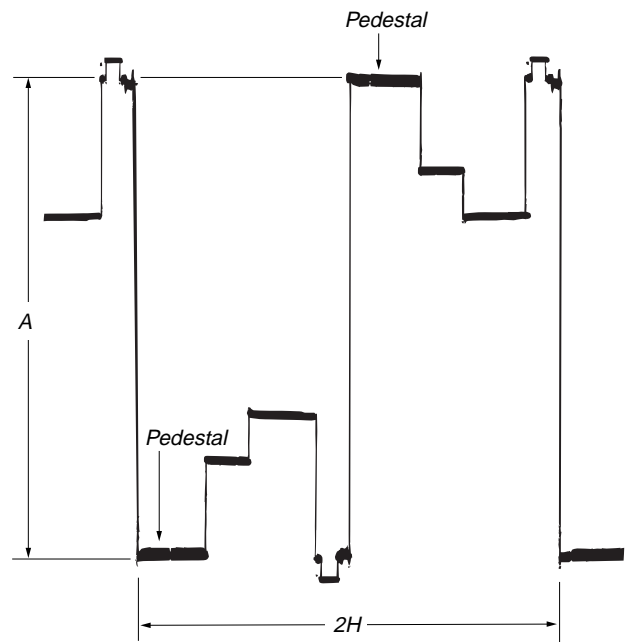


Fig. 5-1-16.

4. Contrast Adjustment (VF-126 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑩ of CN910 (EVF VG) on VC-213 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7B
Specified Value	A=1.95 ± 0.1V (NTSC) A=1.85 ± 0.1V (PAL)

Note : NTSC model : DCR-TR7000/TRV315
PAL model : DCR-TR7000E/TR7100E

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 22, set data: 02, and press the PAUSE button.
- 4) Select page: D, address: 7B, change the data and set the voltage (A) between the pedestal (0 IRE) and 100 IRE to the specified value.
- 5) Press the PAUSE button.
- 6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 8) Select page: 0, address: 01, and set data: 00.

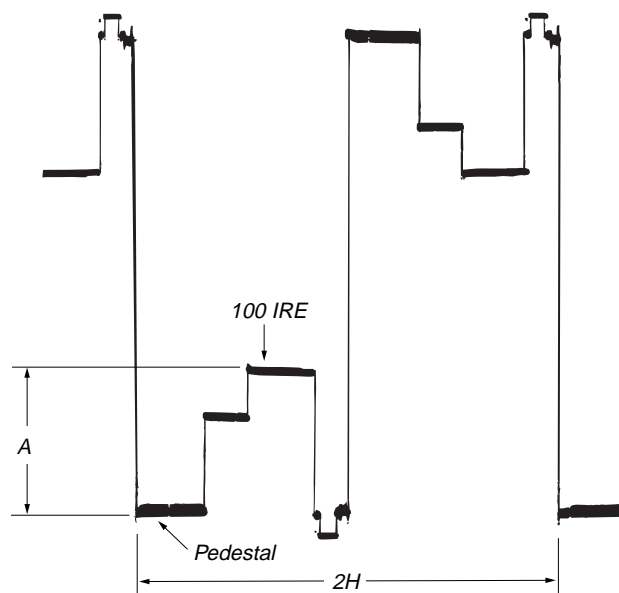


Fig. 5-1-17.

5. Backlight Consumption Current Adjustment (VF-126 board)

Set the backlight luminance and color temperature. If deviated, the image may become dark or bright.

Mode	Camera
Subject	Arbitrary
Measurement Point	+ Probe: Pin ⑩ of CN910 (EVF BL 4.6V) on VC-213 board – Probe: Pin ⑨ of CN910 (EVF BL) on VC-213 board
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	76, 7C
Specified Value	NORMAL mode : A=16 ± 1mVdc BRIGHT mode : A=26 ± 1mVdc

Note: Adjust 30 seconds after running on the power supply.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 7C, change the data and set the voltage difference (A) between Pin ⑩ of CN910 (EVF BL 4.6V) and Pin ⑨ of CN910 (EVF BL) to the specified value of NORMAL mode.
- 3) Press the PAUSE button.
- 4) Select page: D, address: 76, change the data and set the voltage difference (A) between Pin ⑩ and Pin ⑨ to the specified value of BRIGHT mode..
- 5) Press the PAUSE button.
- 6) Select page: 0, address: 01, and set data: 00.

6. White Balance Adjustment (VF-126 board)

Correct the white balance.

If deviated, the reproduction of the EVF screen may degenerate.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on EVF screen
Measuring Instrument	
Adjustment Page	D
Adjustment Address	71, 72
Specified Value	The EVF screen should not be colored.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 22, set data: 0A, and press the PAUSE button.
- 4) Select page: D, address: 71 and 72, set the data to the initial value.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

Address	Data
71	90
72	60

- 5) Check that the EVF screen is not colored. If colored, change the data of page: D, address: 71 and 72 so that the EVF screen is not colored.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

- 6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 8) Select page: 0, address: 01, and set data: 00.

1-5. MONOCHROME ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS (DCR-TRV103/TRV110/TRV110E/TRV110P/ TRV203/TRV210/TRV210E/TRV310/ TRV310E/TRV310P)

Note: NTSC model: DCR-TRV103/TRV110/TRV110P/TRV203/TRV210/
TRV310/TRV310P

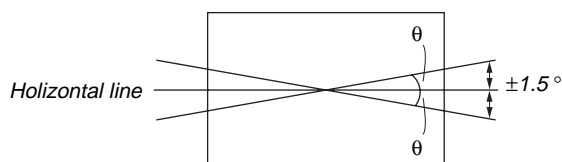
PAL model: DCR-TRV110E/TRV210E/TRV310E

1-5-1. Horizontal Slant Check

Mode	Playback
Signal	Hi8/standard 8mm alignment tape : For checking operation (WR5-8NSE(NTSC)) (WR5-8CSE(PAL)) Monoscope section
Specified Value	$\pm 1.5^\circ$

Adjustment method:

- 1) Adjust RV904 (BRIGHT) (VF-129 board) so that the CRT can be seen easily and clearly.
- 2) Check that the difference between the horizontal line and the tilt of black mask satisfies the specified value.



Specified value : The image should be within $\pm 1.5^\circ$ of the horizontal line.

Fig. 5-1-18.

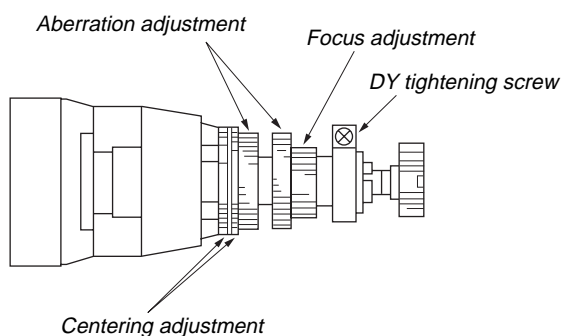
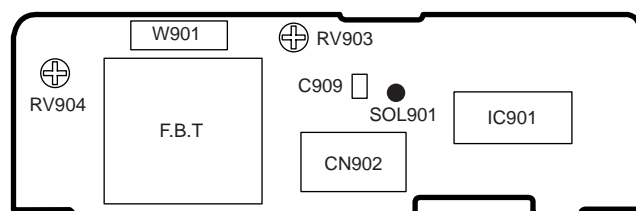


Fig. 5-1-19.

VF-129 BOARD



1-5-2. Centering Adjustment

Mode	Playback
Signal	Hi8/standard 8mm alignment tape : For checking operation (WR5-8NSE(NTSC)) (WR5-8CSE(PAL)) Monoscope section
Specified Value	$\pm 4\%$

Adjustment method:

- 1) Use the centering adjustment ring and adjust so that the left, light, top, and bottom sides of the display are uniform. (Refer to Fig. 5-1-19.)

Note: As the centering position changes due to earth magnetism, rotate it 360° in the horizontal direction, and adjust with the center section of the modifying position.

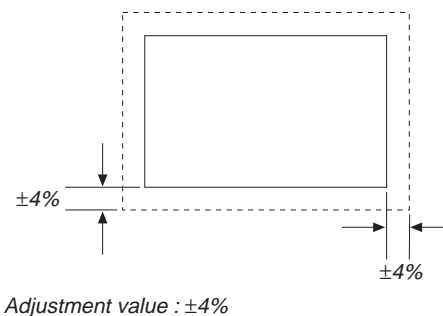


Fig. 5-1-20.

1-5-3. Focus Adjustment

Mode	Playback
Signal	Hi8/standard 8mm alignment tape : For checking operation (WR5-8NSE(NTSC)) (WR5-8CSE(PAL)) Monoscope section

Adjustment method:

- 1) Adjust the focus ring to obtain the optimum focus. (Refer to Fig. 5-1-19.)

1-5-4. Aberration Adjustment

Mode	VTR stop
Signal	Dot pattern
Specified Value	$b1 \leq 2 \times a1$ $b2 \leq 0.8 \times a2$

Adjustment method:

- 1) Adjust the aberration adjustment ring so that the tracing of the dot satisfies the specified value.
- 2) If the centering becomes displaced here, perform the centering adjustment from the beginning again.

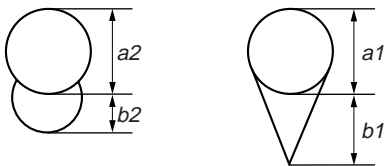


Fig. 5-1-21.

1-5-5. Horizontal Amplitude Adjustment (VF-129 board)

Mode	Playback
Signal	Hi8/standard 8mm alignment tape : For checking operation (WR5-8NSE(NTSC)) (WR5-8CSE(PAL)) Monoscope section
Adjusting Element	C909 (SOL901)
Specified Value	$12 \pm 6\%$

Adjustment method:

- 1) Rotate RV903, and adjust the top and bottom side of the monoscope image to the top and bottom edges of the display.
- 2) Rotate RV904 so that the brightness is the normal level.
- 3) Solder or unsolder SOL901 pattern of the H size adjustment capacitor (C909) to “short” or “open”, so that the horizontal direction over scan becomes $12 \pm 6\%$ (Left and right totals).

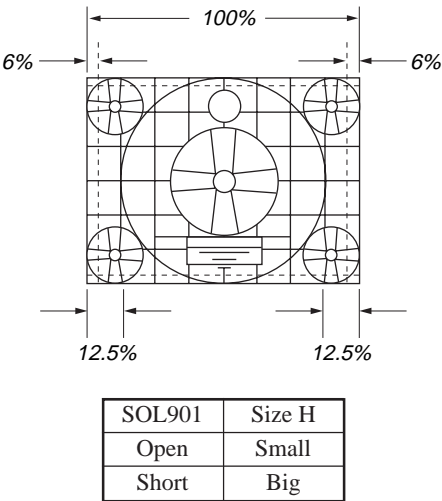
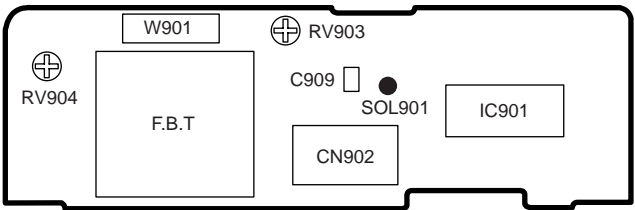


Fig. 5-1-22.

VF-129 BOARD



1-5-6. Vertical Amplitude Adjustment (VF-129 board)

Mode	Playback
Signal	Hi8/standard 8mm alignment tape : For checking operation (WR5-8NSE(NTSC)) (WR5-8CSE(PAL)) Monoscope section
Adjusting Element	RV903
Specified Value	$10 \pm 3\%$

Adjustment method:

- 1) Adjust RV903 so that the vertical direction over scan becomes $10 \pm 3\%$ (Top and bottom totals).

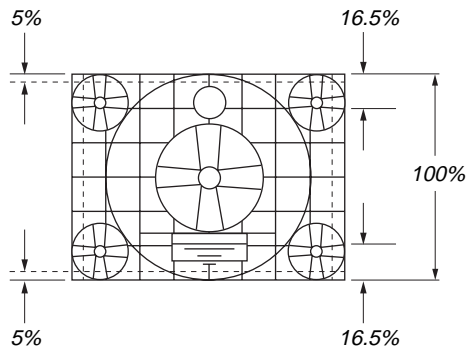


Fig. 5-1-23.

1-5-7. Brightness Adjustment (VF-129 board)

Mode	Playback
Signal	Hi8/standard 8mm alignment tape : For checking operation (WR5-8NSE(NTSC)) (WR5-8CSE(PAL)) Monoscope section
Adjusting Element	RV904

Adjustment method:

- 1) Rotate RV904, and adjust so that the bright/dark sections of gray scale are displayed correctly. (The bright section should be unsatisfactory till the cross hatch appears vague in the monoscope circle. The dark section should be unsatisfactory till the darkest section of the gray scale cannot be differentiate.)

1-5-8. Horizontal Amplitude, Vertical Amplitude, Focus Check

“1-5-5. Horizontal Amplitude Adjustment” and “1-5-6. Vertical Amplitude Adjustment” should be both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform “1-5-7. Brightness Adjustment” again. Moreover, check the focus, and if it found to be vague, perform “1-5-3. Focus Adjustment” and “1-5-4. Aberration Adjustment”.

1-6. LCD SYSTEM ADJUSTMENTS

(DCR-TRV103/TRV110/TRV110E/TRV110P/
TRV203/TRV210/TRV210E/TRV310/
TRV310E/TRV310P/TRV315)

Note 1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note 2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note 3: Set the LCD BRIGHT to the center.

Set the LCD COLOR (Menu display) to the center.

Note 4: 2.5 LCD model: DCR-TRV103/TRV110/TRV110E/TRV110P

3 LCD model: DCR-TRV203/TRV210/TRV210E/TRV315

3.5 LCD model: DCR-TRV310/TRV310E/TRV310P

	PD board
2.5 LCD model	PD-105
3/3.5 LCD model	PD-106

Note 5: LCD TYPE S model: DCR-TRV103/TRV110/TRV110E/
TRV110P/TRV203/TRV210/TRV210E/
TRV310E/TRV315

LCD TYPE C model: DCR-TRV310/TRV310P

[Adjusting connector]

Most of the measuring points for adjusting the LCD display are concentrated in the following connector.

CN5501 of the PD-105/106 board

Connect the Measuring Instruments via the multi CPC jig (J-6082-311-A).

The following table shows the Pin No. and signal name of the connector.

Pin No.	Signal Name	Pin No.	Signal Name
1	VB	2	VCO VOLTAGE.
3	VG	4	PANEL COM
5	VR	6	N.C.
7	SYNC	8	H START
9	GND	10	GND

[LCD type check]

By measuring the resistor value between Pin ⑥ of CN5501 and Pin ⑩ of CN5501, the type of LCD can be discriminated.

PD-105/106 board CN5501

Resistor value	LCD type	Model
1kΩ	2.5 LCD TYPE S 61k	CCD-TRV103/TRV110/TRV110P/ TRV110E (E,HK,AUS,CN,JE)
2.2kΩ	2.5 LCD TYPE S 84k	CCD-TRV103E (AEP, UK, EE, NE, RU)
4.7kΩ	3 LCD TYPE S	CCD-TRV203/TRV210/ TRV210E/TRV315
5.6kΩ	3.5 LCD TYPE S	CCD-TRV310E
6.8kΩ	3.5 LCD TYPE C	CCD-TRV310/TRV310P

Abbreviation

EE : East European model
NE : North European model
RU : Russian model
HK : Hong Kong model
AUS : Australian model
CN : Chinese model
JE : Tourist model

1. LCD Initial Data Input (1)

Mode	VTR stop
Signal	Arbitrary
Adjustment Page	E
Adjustment Address	C3, C4

Adjusting method:

1) Select page: 0, address:01, and set data: 01.

2) Select page: E, and input the data in the following table.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

3) Select page: 0, address:01, and set data: 00.

Address	Data			Remark
	2.5 LCD	3 LCD	3.5 LCD	
C3	B3	9A	A1	Fixed data
C4	E0	BC	C9	Fixed data

2. LCD Initial Data Input (2)

Mode	VTR stop
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	80 to 85, 88 to 8F

Adjusting method:

1) Select page: 0, address:01, and set data: 01.

2) Select page: D, and input the data in the following table.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

3) Select page: 0, address:01, and set data: 00.

Address	Data		Remark
	TYPE S	TYPE C	
80	80	98	White balance adj.
81	80	7B	White balance adj.
82	88	80	D range adj.
83	90	89	V-COM level adj.
84	80	80	VCO adj.
85	70	80	V-COM adj.
88	80	80	Fixed data
89	80	80	Fixed data
8A	60	84	Bright adj.
8B	78	78	Color adj.
8C	80	8D	Contrast adj.
8D	52	52	Fixed data
8E	99	99	Fixed data
8F	00	00	Fixed data

3. VCO Adjustment (PD-105/106 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ② of CN5501 (VCO VOLTAGE)
Measuring Instrument	Oscilloscope (DC range)
Adjustment Page	D
Adjustment Address	84
Specified Value	$A = 2.75^{+0.03}_{-0.05}$ V (LCD TYPE S) $A = 1.70^{+0.03}_{-0.05}$ V (LCD TYPE C)

Note : LCD TYPE S model: DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310E/TRV315

LCD TYPE C model: DCR-TRV310/TRV310P

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 84, change the data and set the VCO VOLTAGE (A) to the specified value.
- 3) Press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

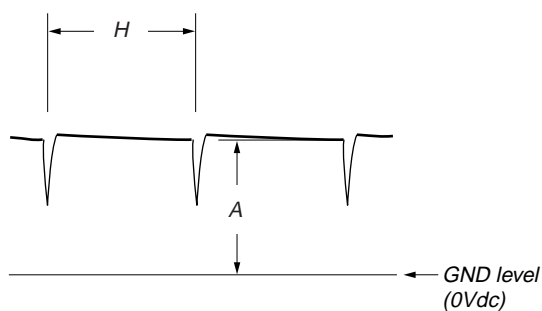


Fig. 5-1-24.

4. D range Adjustment (PD-105/106 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN5501 (VG) External trigger : Pin ④ of CN5501 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	82
Specified Value	$A = 3.42 \pm 0.05$ V (LCD TYPE S) $A = 3.01 \pm 0.05$ V (LCD TYPE C)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 22, set data: 02, and press the PAUSE button.
- 4) Select page: D, address: 82, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
- 5) Press the PAUSE button.
- 6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 8) Select page: 0, address: 01, and set data: 00.

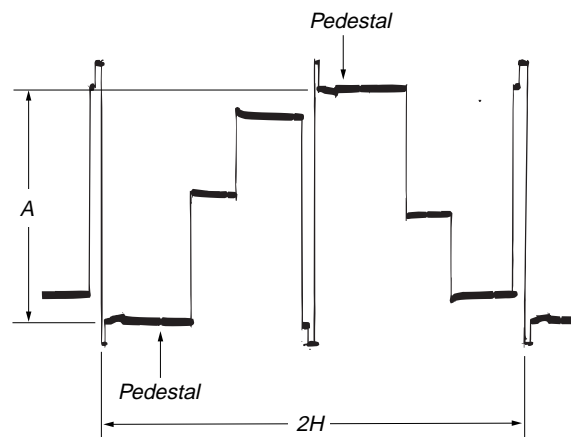


Fig. 5-1-25.

5. Bright Adjustment (PD-105/106 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN5501 (VG) External trigger : Pin ④ of CN5501 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	8A
Specified Value	A=1.61 ± 0.05V (2.5 LCD TYPE S) A=1.76 ± 0.05V (3/3.5LCD TYPE S) A=1.34 ± 0.05V (LCD TYPE C)

Note : 2.5 LCD TYPE S model: DCR-TRV103/TRV110/TRV110E/TRV110P/
3/3.5 LCD TYPE S model: DCR-TRV203/TRV210/TRV210E/TRV310E/TRV315
LCD TYPE C model: DCR-TRV310/TRV310P

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 22, set data: 02, and press the PAUSE button.
- 4) Select page: 2, address: 0E, and set data: 40.
- 5) Select page: D, address: 8A, change the data and set the voltage (A) between the pedestal and gamma1 level to the specified value. (The data of address: 8A should be "41" to "BF".)
- 6) Press the PAUSE button.
- 7) Select page: 2, address: 0E, and set data: 00.
- 8) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
- 9) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 10) Select page: 0, address: 01, and set data: 00.

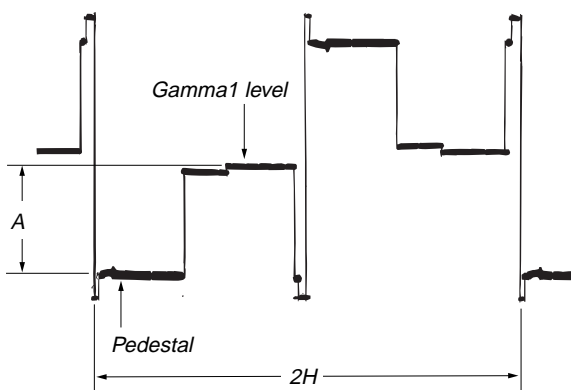


Fig. 5-1-26.

6. Contrast Adjustment (PD-105/106 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN5501 (VG) External trigger : Pin ④ of CN5501 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	8C
Specified Value	A=3.10 ± 0.07V (LCD TYPE S) A=2.38 ± 0.07V (LCD TYPE C)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 22, set data: 02, and press the PAUSE button.
- 4) Select page: D, address: 8C, change the data and set the voltage (A) between the pedestal (0 IRE) and 100 IRE to the specified value.
- 5) Press the PAUSE button.
- 6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 8) Select page: 0, address: 01, and set data: 00.

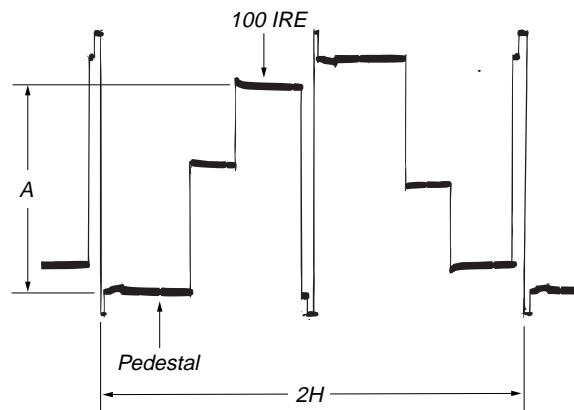


Fig. 5-1-27.

7. V-COM Level Adjustment (PD-105/106 board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ④ of CN5501 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	83
Specified Value	$A=6.15 \pm 0.05V$ (2.5 LCD TYPE S 61k NTSC) $A=6.48 \pm 0.05V$ (2.5 LCD TYPE S 61k PAL) $A=6.03 \pm 0.05V$ (2.5 LCD TYPE S 84k PAL) $A=6.28 \pm 0.05V$ (3 LCD TYPE S NTSC) $A=6.60 \pm 0.05V$ (3 LCD TYPE S PAL) $A=6.60 \pm 0.05V$ (3.5 LCD TYPE S PAL) $A=5.10 \pm 0.05V$ (3.5 LCD TYPE C NTSC)

Note 1 : Perform “Bright Adjustment” and “Contrast Adjustment” before this adjustment.

Note 2 : 2.5 LCD TYPE S 61k NTSC model : DCR-TRV103/TRV110/TRV110P
 2.5 LCD TYPE S 84k PAL model : DCR-TRV110E
 (AEP,UK,EE,NE,RU)
 2.5 LCD TYPE S 61k PAL model : DCR-TRV110E
 (E,HK,AUS,CN,JE)
 3 LCD TYPE S NTSC model : DCR-TRV203/TRV210/TRV315
 3 LCD TYPE S PAL model : DCR-TRV210E
 3.5 LCD TYPE S PAL model : DCR-TRV310E
 3.5 LCD TYPE C NTSC model : DCR-TRV310/TRV310P

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 22, set data: 02, and press the PAUSE button.
- 4) Select page: D, address: 83, change the data and set the PANEL COM signal level (A) to the specified value.
- 5) Press the PAUSE button.
- 6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 8) Select page: 0, address: 01, and set data: 00.

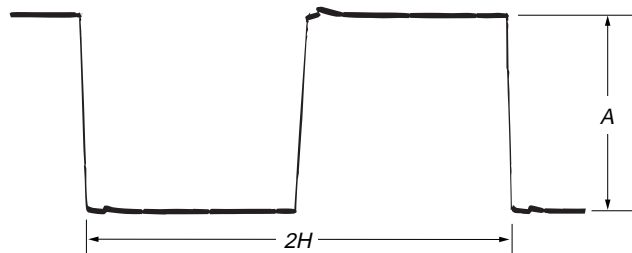


Fig. 5-1-28.

8. Color Adjustment (PD-105/106 board)

Set the color saturation to the standard value. If deviated, the color will be to dark or light.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN5501 (VG) External trigger : Pin ④ of CN5501 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	8B
Specified Value	$A=0.43 \pm 0.05V$ (2.5 LCD TYPE S 61k NTSC) $A=0.45 \pm 0.05V$ (2.5 LCD TYPE S 61k PAL) $A=0.36 \pm 0.05V$ (2.5 LCD TYPE S 84k PAL) $A=0.49 \pm 0.05V$ (3 LCD TYPE S NTSC) $A=0.43 \pm 0.05V$ (3 LCD TYPE S PAL) $A=0.40 \pm 0.05V$ (3.5 LCD TYPE S PAL) $A=0.22 \pm 0.05V$ (3.5 LCD TYPE C NTSC)

Note : 2.5 LCD TYPE S 61k NTSC model :DCR-TRV103/TRV110/TRV110P

2.5 LCD TYPE S 84k PAL model : DCR-TRV110E
 (AEP,UK,EE,NE,RU)

2.5 LCD TYPE S 61k PAL model : DCR-TRV110E
 (E,HK,AUS,CN,JE)

3 LCD TYPE S NTSC model : DCR-TRV203/TRV210/TRV315
 3 LCD TYPE S PAL model : DCR-TRV210E

3.5 LCD TYPE S PAL model : DCR-TRV310E

3.5 LCD TYPE C NTSC model : DCR-TRV310/TRV310P

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: C, address: 95, set data: 10, and press the PAUSE button.
- 4) Select page: C, address: 96, set data: 10, and press the PAUSE button.
- 5) Select page: D, address: 8B, change the data and set the voltage (A) between the white and green to the specified value.
- 6) Press the PAUSE button.
- 7) Select page: C, address: 95, set data: 20, and press the PAUSE button.
- 8) Select page: C, address: 96, set data: 20, and press the PAUSE button.
- 9) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 10) Select page: 0, address: 01, and set data: 00.

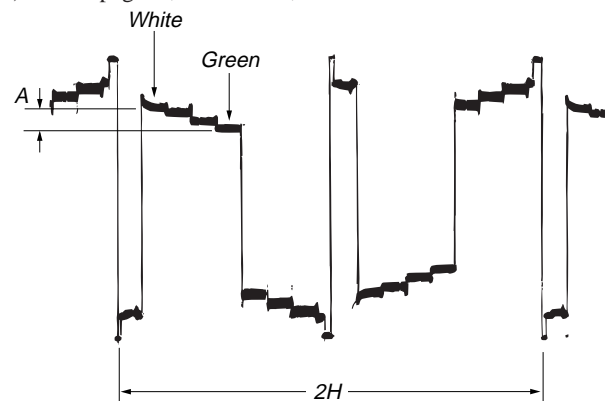


Fig. 5-1-29.

9. V-COM Adjustment (PD-105/106 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.

If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	D
Adjustment Address	85
Specified Value	The brightness difference between the section A and section B is minimum.

Note : Perform “Bright Adjustment” and “Contrast Adjustment” before this adjustment.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 22, set data: 0F, and press the PAUSE button.
- 4) Select page: 2, address: 0E, and set data: 20.
- 5) Select page: D, address: 85, change the data so that the brightness of the section A and that of the section B is equal.
- 6) Press the PAUSE button.
- 7) Select page: 2, address: 0E, and set data: 00.
- 8) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
- 9) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 10) Select page: 0, address: 01, and set data: 00.

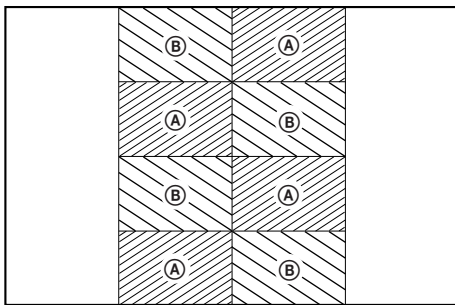


Fig. 5-1-30.

10. White Balance Adjustment (PD-105/106 board)

Correct the white balance.

If deviated, the LCD screen color cannot be reproduced.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	D
Adjustment Address	80, 81
Specified Value	The LCD screen should not be colored.

Note 1 : Check the white balance only when replacing the following parts. If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC5502

Note 2 : LCD TYPE S model: DCR-TRV103/TRV110/TRV110E/
TRV110P/TRV203/TRV210/TRV210E/
TRV310E/TRV315

LCD TYPE C model: DCR-TRV310/TRV310P

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 22, set data: 0A, and press the PAUSE button.
- 4) Select page: D, address: 80 and 81, and set the data to the initial value.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

Address	Data
80	80 (LCD TYPE S), 98 (LCD TYPE C)
81	80 (LCD TYPE S), 7B (LCD TYPE C)

- 5) Check that the LCD screen is not colored. If colored, change the data of page: D, address: 80 and 81 so that the LCD screen is not colored.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

- 6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 8) Select page: 0, address: 01, and set data: 00.

5-2. MECHANISM SECTION ADJUSTMENT

Mechanism Section adjustments, checks, and replacement of mechanism parts, refer to the separate volume “8mm Video Mechanism Adjustment Manual VII [B Mechanism]”.

Note 1: NTSC model: DCR-TR7000/TRV103/TRV110/TRV110P/
TRV203/TRV210/TRV310/TRV310P/TRV315
PAL model: DCR-TR7000E/TR7100E/TRV110E/TRV210E/
TRV310E

2-1. Hi8/STANDARD 8mm MODE

2-1-1. OPERATING WITHOUT CASSETTE

- 1) Refer to “Section 2. DISASSEMBLY” and supply the power with the cabinet assembly removed. (So that the mechanical deck can be operated.)
- 2) Connect the adjustment remote commander to the LANC jack.
- 3) Turn on the HOLD switch of the adjustment remote commander.
- 4) Close the cassette compartment without loading a cassette and complete loading.
- 5) Select page: 0, address: 01, and set data: 01.
- 6) Select page: F, address: 2C, set data: 01, and press the PAUSE button of the adjustment remote commander.
- 7) Select page: D, address: 10, set data: 10, and press the PAUSE button of the adjustment remote commander.
- 8) Disconnect the power supply of the unit.
By carrying out the above procedure, the unit can be operated without loading a cassette. (Note2)
Be sure to carry out “Processing after Operations” after checking the operations.
Set the data of page: D, address: 10 to “12”, if the sensor ineffective mode, forced VTR power supply ON mode is to be used together.

Note 2: Except for the camera recording mode and VTR recording mode.

[Procedure after checking operations]

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 2C, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.
- 5) Disconnect the power supply of the unit.

2-1-2. TAPE PATH ADJUSTMENT

1. Preparations for Adjustment

- 1) Clean the tape path face (tape guide, capstan shaft, pinch roller).
- 2) Connect the adjustment remote commander to the LANC jack.
- 3) Turn on the HOLD switch of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 01.
- 5) Select page: 2, address: 2E, and set data: 02.
- 6) Select page: F, address: 2C, set data: 04, and press the PAUSE button of the adjustment remote commander.
(Be sure to perform “Processing after operation” after completing adjustments.)
- 7) Connect the oscilloscope to VC-213 board CN910 via CPC-13 jig (J-6082-443-A).
Channel 1: VC-213 board, CN910 Pin ⑤
External trigger: VC-213 board, CN910 Pin ⑧
- 8) Playback Hi8/standard 8mm alignment tape for tracking.
(WR5-1NP(NTSC))
(WR5-1CP(PAL))
- 9) Check that the oscilloscope RF waveform is flat at the entrance and exit.
If not flat, adjust according to the separate volume “8mm Video Mechanical Adjustment Manual VII [B Mechanism]”.
- 10) Perform “Processing after operations”, after completing adjustment.

CN910 of VC-213board

Pin No.	Signal Name	Pin No.	Signal Name
1	SWP	11	EVF VCO
2	AFC F0	12	EVF VG
3	BPF MONI	13	DV RF SWP
4	RF AGC IN	14	RF IN
5	PB RF	15	CAP FG
6	REG GND	16	RF MON
7	RF AGC OUT	17	TMS
8	VC RF SWP	18	TCK
9	EVF BL	19	TDO
10	EVF BL 4.6V	20	TDI

Table 5-2-1.

[Procedure after operations]

- 1) Connect the adjustment remote commander, and turn on the HOLD switch.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 2, address: 2E, and set data: 00.
- 4) Select page: F, address: 2C, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 5) Select page: 0, address: 01, and set data: 00.
- 6) Remove the power supply from the unit.

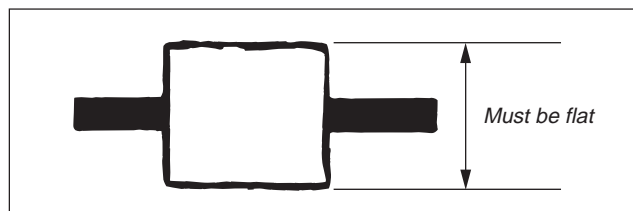


Fig. 5-2-1.

2-2. DIGITAL8 MODE

2-2-1. HOW TO ENTER RECORD MODE WITHOUT CASSETTE

- 1) Connect the adjustment remote commander to the LANC jack.
- 2) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 3) Close the cassette compartment without the cassette.
- 4) Select page: 3, address: 01, and set data: 0C, and press the PAUSE button of the adjustment remote commander. (The mechanism enters the record mode automatically.)
Note: The function buttons becomes inoperable.
- 5) To quit the record mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the record mode, be sure to quit following this procedure.)

2-2-2. HOW TO ENTER PLAYBACK MODE WITHOUT CASSETTE

- 1) Connect the adjustment remote commander to the LANC jack.
- 2) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 3) Close the cassette compartment without the cassette.
- 4) Select page: 3, address: 01, and set data: 0B, and press the PAUSE button of the adjustment remote commander. (The mechanism enters the playback mode automatically.)
Note: The function buttons becomes inoperable.
- 5) To quit the playback mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the playback mode, be sure to quit following this procedure.)

2-2-3. OVERALL TAPE PATH CHECK

1. Recording of the tape path check signal

- 1) Clean the tape running side (tape guide, capstan shaft, pinch roller).
- 2) Connect the adjustment remote commander to the LANC jack.
- 3) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 4) Set to the camera recording mode.
- 5) Select page: 3, address: 1C, set data: 5D, and press the PAUSE button of the adjustment remote commander.
- 6) Record for several minutes.
- 7) Release the camera recording mode.
- 8) Select page: 3, address: 1C, set data: 00, and press the PAUSE button.

2. Tape path check

- 1) Clean the tape running side (tape guide, capstan shaft, pinch roller).
- 2) Connect the adjustment remote commander to the LANC jack.
- 3) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 4) Connect an oscilloscope to VC-213 board CN910 via the CPC-13 jig (J-6082-443-A).
Channel 1: VC-213 board, CN910 Pin ⑩ (Note)
External trigger: VC-213 board, CN910 Pin ⑬
Note: Connect a 75Ω resistor between Pins ⑩ of CN910 and ⑥ (GND).
- 5) Select page: 2, address: 2E, and set data: 01.
- 6) Playback the tape path check signal.
- 7) Select page: 3, address: 33, and set data: 08.
- 8) Select page: 3, address: 26, and set data: 31.
- 9) Check that the oscilloscope RF waveform is flat at the entrance and exit.
If not flat, perform “2-1-2. TAPE PATH ADJUSTMENT “ of “2-1. Hi8/STANDARD 8mm MODE”.
- 10) Select page: 3, address: 26, and set data: 00.
- 11) Select page: 3, address: 33, and set data: 00.
- 12) Select page: 2, address: 2E, and set data: 00.

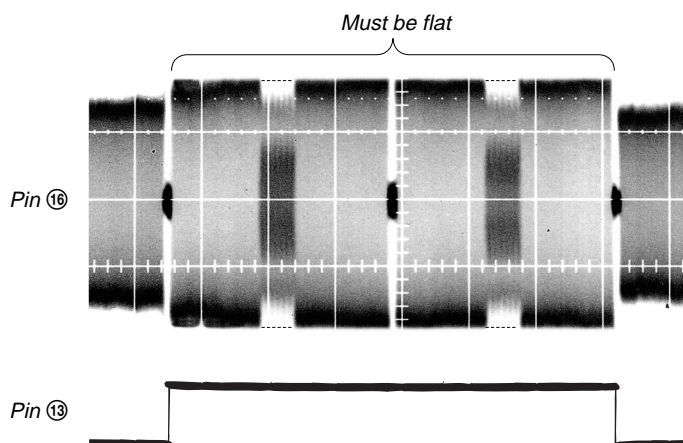


Fig. 5-2-2.

5-3. VIDEO SECTION ADJUSTMENT

3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

Note: NTSC model: DCR-TR7000/TRV103/TRV110/TRV110P/TRV203/
TRV210/TRV310/TRV310P/TRV315
PAL model: DCR-TR7000E/TR7100E/TRV110E/TRV210E/
TRV310E

3-1-1. Equipment to Required

- 1) TV monitor
- 2) Oscilloscope (dual-phenomenon, band width above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
- 3) Frequency counter
- 4) Pattern generator with video output terminal
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Regulated power supply
- 11) Digital8 alignment tapes
 - SW/OL standard (WR5-2D)
Parts code: 8-967-993-22
 - Audio operation check for NTSC (WR5-3ND)
Parts code: 8-967-993-32
 - System operation check for NTSC (WR5-5ND)
Parts code: 8-967-993-42
 - BIST check for NTSC (WR5-6ND)
Parts code: 8-967-993-51
 - Audio operation check for PAL (WR5-3CD)
Parts code: 8-967-993-37
 - System operation check for PAL (WR5-5CD)
Parts code: 8-967-993-47
 - BIST check for PAL (WR5-6CD)
Parts code: 8-967-993-56
- 12) NTSC Hi8/standard8 mm alignment tapes (For NTSC model)
 - For tracking adjustment (WR5-1NP)
Parts code : 8-967-995-02
 - For video frequency characteristics adjustment (WR5-7NE)
Parts code : 8-967-995-13
 - For checking Standard 8 mode operations
For LP (WR5-4NL)
Parts code : 8-967-995-51
For SP (WR5-5NSP)
Parts code : 8-967-995-42

Note : The following alignment tapes can also be used.
WR5-4NSP (8-967-995-41)

 - For checking Hi8 mode operations
For LP (WR5-8NLE)
Parts code : 8-967-995-52
For SP (WR5-8NSE)
Parts code : 8-967-995-43
 - For Checking AFM stereo operations (WR5-9NS)
Parts code : 8-967-995-23
 - For BPF adjustment (WR5-11NS)
Parts code : 8-967-995-71
- 13) PAL Hi8/standard8 mm alignment tapes (For PAL model)
 - For tracking adjustment (WR5-1CP)
Parts code : 8-967-995-07
 - For video frequency characteristics adjustment (WR5-7CE)
Parts code : 8-967-995-18
 - For checking Standard 8 mode operations
For LP (WR5-4CL)
Parts code : 8-967-995-56
For SP (WR5-5CSP)
Parts code : 8-967-995-47

Note : The following alignment tapes can also be used.
1) WR5-3CL (8-967-995-36)
2) WR5-4CSP (8-967-995-46)

 - For checking Hi8 mode operations
For LP (WR5-8CLE)
Parts code : 8-967-995-57
For SP (WR5-8CSE)
Parts code : 8-967-995-48
 - For Checking AFM stereo operations (WR5-9CS)
Parts code : 8-967-995-28
 - For BPF adjustment (WR5-11CS)
Parts code : 8-967-995-76
- 14) Adjustment remote commander (J-6082-053-B)
- 15) CPC-13 jig (J-6082-443-A)
- 16) Power code (J-6082-223-A)

Note : Connect the adjustment remote commander to the LANC jack, and set the HOLD switch to the "ADJ" side.
- 17) IR receiver jig (J-6082-383-A)
- 18) Extension cable (70P, 0.5mm)
For extension between the DD-117 board (CN931) and the VC-213 board (CN914) (J-6082-439-A)

3-1-2. Precautions on Adjusting

- 1) The adjustments of this unit are performed in the VTR mode or camera mode.
To set to the VTR mode, set the power switch to "VTR or PLAYER" or set the "Forced VTR Power ON mode" using the adjustment remote commander (Note 1).
To set to the Camera mode, set the power switch to "CAMERA" or set the "Forced Camera Power ON mode" using the adjustment remote commander (Note 2).
After completing adjustments, be sure to exit the "Forced VTR Power ON Mode" or "Forced Camera Power ON Mode". (Note 3)
- 2) The front panel block (MA-354/355/357 board, focus dial, microphone unit) need not be connected except during "Battery end adjustment" and "IR transmitter adjustment". To remove, disconnect the following connectors.
VC-213 board CN903 (22P 0.5mm)
- 3) By setting the "Forced VTR Power ON mode" or "Forced Camera Power ON mode", the video section can be operate even if even if the cabinet (R) block (Camera function switch (CF-62/63/65 board), LCD block (TRV model only), viewfinder. power switch) has been removed. But removing the cabinet (R) block (removing the VC-213 board CN911) means removing the lithium 3V power supply (CF-62/63/65 board BH001) , data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) block has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data and data on history use (data of page: 2, address: A2 to AA). (Refer to "SELF-DIAGNOSIS FUNCTION" for the self-diagnosis data, and to "5-4. Service Mode" for the data on the history use.) To remove the cabinet (R), disconnect the following connectors.
 1. VC-213 board CN911 (50P, 0.5mm)
 2. DD-117 board CN933 (10P, 1.0mm) (TRV model only)
- 4) The lens block (CD-212/213 board) and the intelligent accessory shoe need not be connected except during "Battery end adjustment". To remove, disconnect the following connectors.
 1. VC-213 board CN501 (16P, 0.5mm)
 2. VC-213 board CN551 (24P, 0.5mm)
 3. Intelligent accessory shoe (8P, 0.5mm)

Note 1: Setting the "Forced VTR Power ON" mode (VTR mode)

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the VTR power to be turned on with the front panel block removed.
After completing adjustments, be sure to exit the "Forced VTR Power ON mode".

Note 2: Setting the "Forced Camera Power ON" mode (Camera mode)

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the camera power to be turned on with the front panel block removed.
After completing adjustments, be sure to exit the "Forced Camera Power ON mode".

Note 3: Exiting the "Forced Power ON" mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

Note 4: 2.5 LCD model : DCR-TRV103/TRV110/TRV110E/TRV110P
3/3.5 LCD model : DCR-TRV203/TRV210/TRV210E/TRV310/
TRV310E/TRV310P/TRV315
TR model : DCR-TR7000/TR7000E/TR7100E
TRV model : DCR-TRV103/TRV110/TRV110E/TRV110P/
TRV203/TRV210/TRV210E/TRV310/TRV310E/
TRV310P/TRV315

	MA board	CF board	PD board
2.5 LCD model	MA-354	CF-62	PD-105
3/3.5 LCD model	MA-355	CF-63	PD-106
TR model	MA-357	CF-65	

Note 5: 720H model:DCR-TR7000/TRV103/TRV110/TRV110P/
TRV203/TRV210/TRV310/TRV310P/TRV315
960H model:DCR-TR7000E/TR7100E/TRV110E/TRV210E/
TRV310E

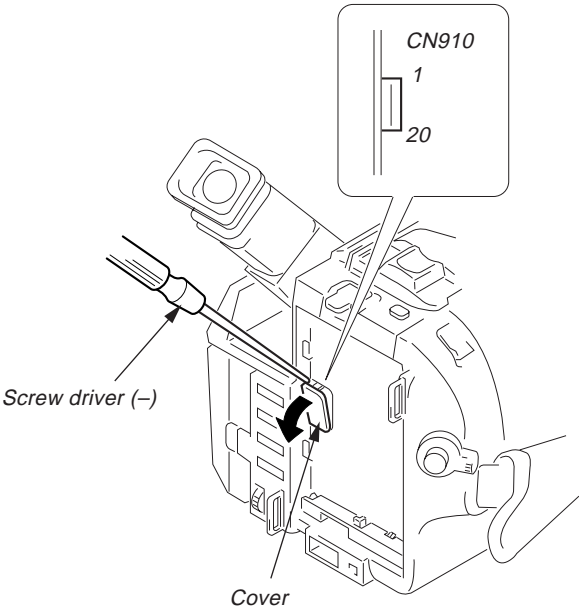
	CD board
720H model	CD-212
960H model	CD-213

3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated at VC-213 board CN910. Connect the measuring instruments via the CPC-13 jig (J-6082-443-A). The following table lists the pin numbers and signal names of CN910.

Pin No.	Signal Name	Pin No.	Signal Name
1	SWP	11	EVF VCO
2	AFC F0	12	EVF VG
3	BPF MONI	13	DV RF SWP
4	RF AGC IN	14	RF IN
5	PB RF	15	CAP FG
6	REG GND	16	RF MON
7	RF AGC OUT	17	TMS
8	VC RF SWP	18	TCK
9	EVF BL	19	TDO
10	EVF BL 4.6V	20	TDI

Table 5-3-1.



3-1-4. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 5-3-2 and perform the adjustments.

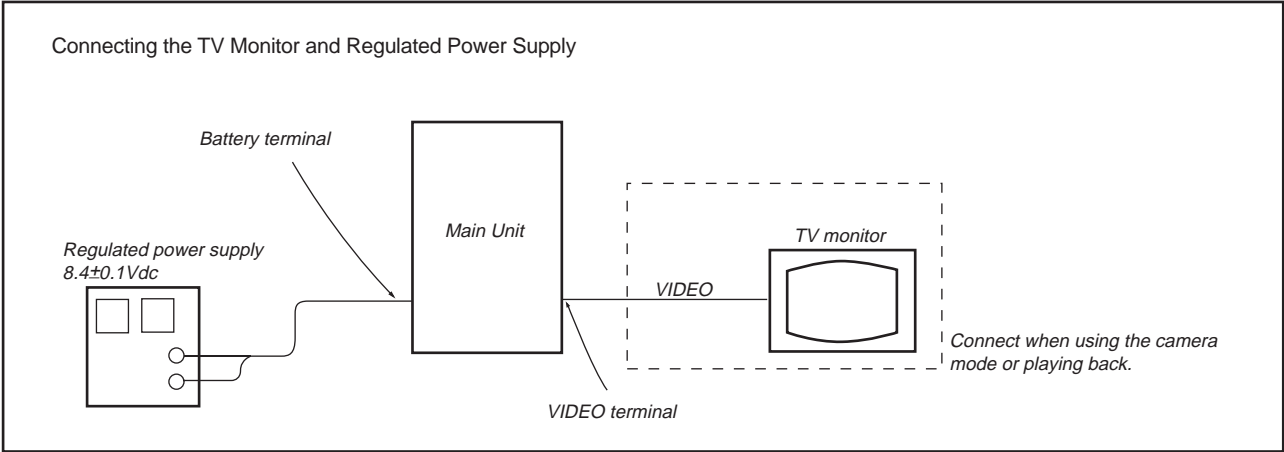


Fig. 5-3-2.

3-1-5. Alignment Tape

The following table lists alignment tapes which are available.
Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

Digital8 alignment tape

Name	Usage
SW/OL standard (WR5-2D)	Switching position adjustment
Audio operation check (WR5-3ND (NTSC), WR5-3CD (PAL))	Audio system adjustment
System operation check (WR5-5ND (NTSC), WR5-5CD (PAL))	Operation check
BIST check (WR5-6ND (NTSC), WR5-6CD (PAL))	BIST check

Hi8/standard 8 mm alignment tape

Name	Recording mode	Tape type	Tape speed	Usage
Tracking (WR5-1NP(NTSC), WR5-1CP(PAL))	Standard 8 mm	MP	SP	Tape path adjustment, Switching position adjustment
Video frequency characteristics (WR5-7NE(NTSC), WR5-7CE(PAL))	Hi8	ME	SP(NTSC) LP(PAL)	Frequency characteristics adjustment
Operation check (WR5-5NSP(NTSC), WR5-5CSP(PAL))	Standard 8 mm	MP	SP	Operation check
Operation check (WR5-8NSE(NTSC), WR5-8CSE(PAL))	Hi8	ME	SP	
Operation check (WR5-4NL(NTSC), WR5-4CL(PAL))	Standard 8 mm	MP	LP	
Operation check (WR5-8NLE(NTSC), WR5-8CLE(PAL))	Hi8	ME	LP	
AFM stereo operation check WR5-9NS(NTSC), WR5-9CS(PAL)	Standard 8 mm	MP	SP	AFM stereo Operation check
BPF adjustment WR5-11NS(NTSC), WR5-11CS(PAL)	Standard 8 mm	MP	SP	BPF adjustment

Tape type

ME Particle type metal tape

MP Evaporated type metal tape

Table. 5-3-2.

Fig. 5-3-3. Shows the color bar signals recorded on the alignment tape.

Note : Measure using the VIDEO terminal (Terminated at 75 Ω).

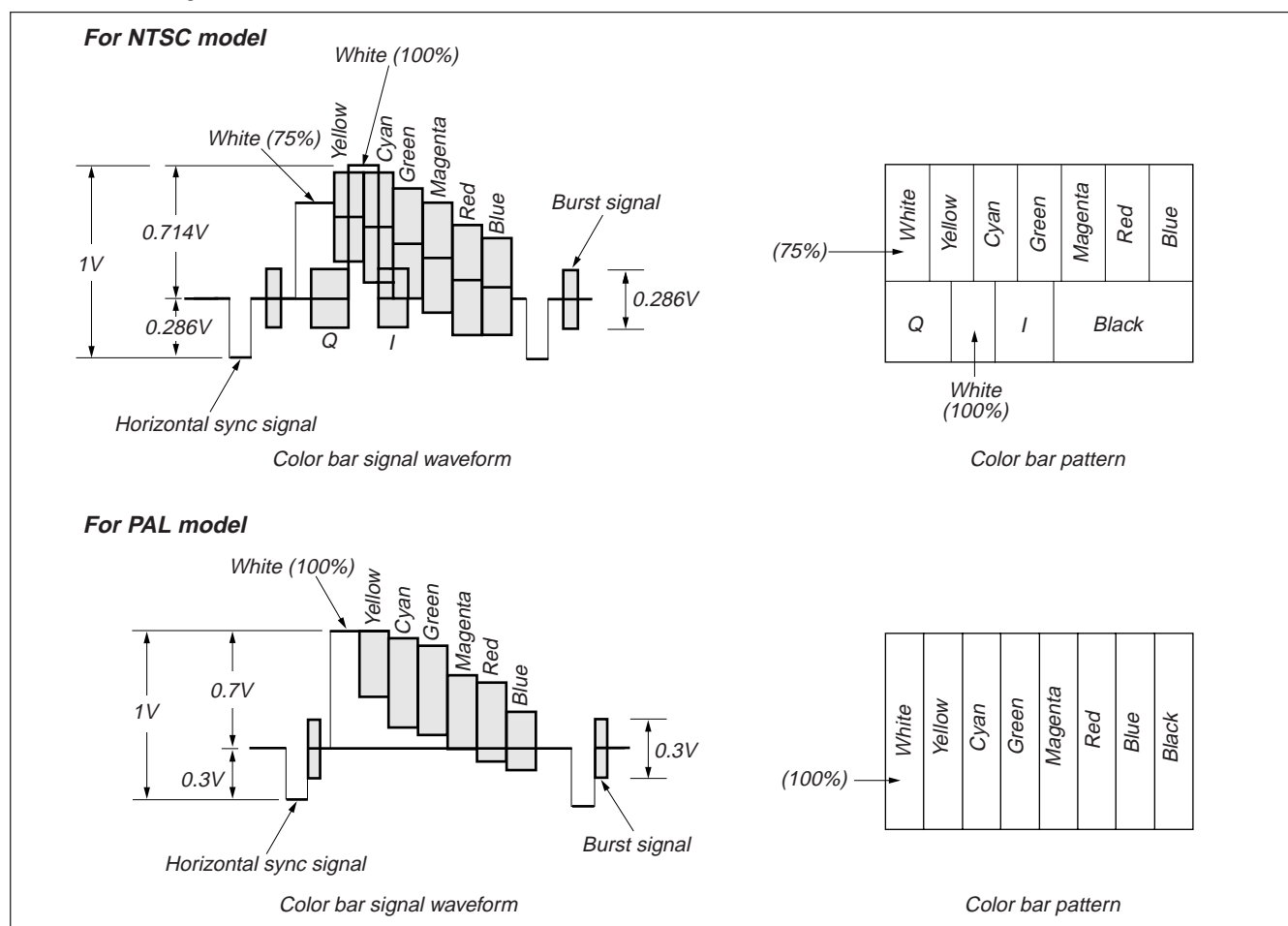


Fig. 5-3-3. Color Bar Signal of the Alignment Tape

3-1-6. Input/output Level and Impedance

Video input/output

Phono jack, 1Vp-p, 75 Ω , unbalanced, sync negative

S video input/output

4-pin mini DIN

Luminance signal:

1Vp-p, 75 Ω , unbalanced, sync negative

Chrominance signal:

0.286Vp-p, 75 Ω , unbalanced (NTSC)

0.300Vp-p, 75 Ω , unbalanced (PAL)

Audio input/output

Phono jack:

Input: -7.5dBs, input impedance more than 47k Ω

Output: -7.5dBs, (at load impedance 47k Ω), output impedance less than 2.2k Ω

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Initialization of C, D, E, F Page Data

If the C, D, E, F page data is erased due to some reason, perform “1-2. INITIALIZATION OF C, D, E, F PAGE DATA”, of “5-1. CAMERA SECTION ADJUSTMENT”

2. Battery End Adjustment (VC-213 board)

Set the battery end voltage.
If the voltage is incorrect, the life of the battery will shorten.
The image at the battery end will also be rough.

Mode	Camera recording
Subject	Arbitrary
Measurement Point	LCD display of the adjustment remote commander
Measuring Instrument	
Adjustment Page	D
Adjustment Address	30 to 34

Note 1: The lens block and cabinet (R) must be connected.

Switch setting

- 1) AUTO FOCUS OFF
- 2) LCD screen (TRV model) Closed
- 3) NIGHT SHOT OFF

Note 2: TRV model:DCR-TRV103/TRV110/TRV110E/TRV110P/
TRV203/TRV210/TRV210E/TRV310/
TRV310E/TRV310P/TRV315

Connection:

- 1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 5-3-4.

Adjusting method:

- 1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is $6.1 \pm 0.1\text{Vdc}$.
- 2) Turn off the power supply.
- 3) Turn on the HOLD switch of the adjustment remote commander.
- 4) Turn on the power supply.
- 5) Load a cassette, and set to the camera recording mode.
- 6) Select page: 0, address: 01, and set data: 01.
- 7) Decrease the output voltage of the regulated power supply so that the digital voltmeter display is $5.30 \pm 0.01\text{Vdc}$.
- 8) Select page: 2, address: 5D, read the data, and this data is named Dref.
- 9) Select page: D, address: 30, set data: Dref, and press the PAUSE button of the adjustment remote commander.
- 10) Convert Dref to decimal notation, and obtain Dref'. (Refer to Table 5-4-1. “Hexadecimal-decimal conversion table” of “5-4. Service Mode”.)
- 11) Calculate D_{31}' , D_{32}' , D_{33}' and D_{34}' using following equations (decimal calculation), convert it to a hexadecimal number, and input each adjustment address.
Address: 31 $D_{31}' = \text{Dref}' + 5$
Address: 32 $D_{32}' = \text{Dref}' + 32$
Address: 33 $D_{33}' = \text{Dref}' + 53$
Address: 34 $D_{34}' = \text{Dref}' + 64$

Note 3: After setting each data, be sure to press the PAUSE button.

- 12) Select page: 0, address: 01, and set data: 00.

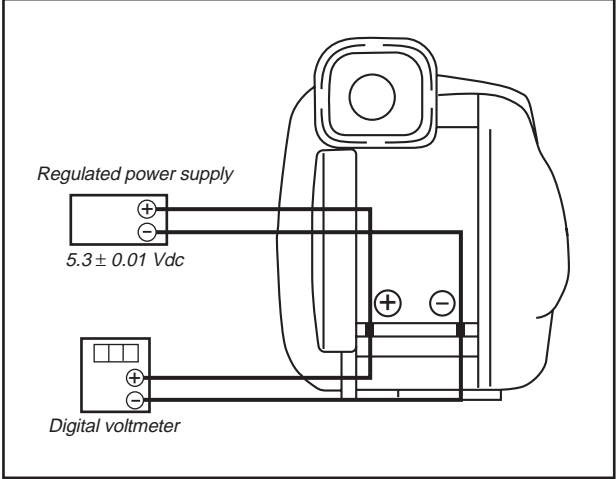


Fig. 5-3-4.

3-3. SERVO AND RF SYSTEM ADJUSTMENTS

Before perform the servo and RF system adjustments, check that the specified value of “27 MHz/36MHz Origin Oscillation Adjustment” and “Hi8/standard 8mm 14 MHz Origin Oscillation Adjustment” of “3-4. VIDEO SYSTEM ADJUSTMENT” is satisfied.

Adjusting Procedure:

1. PLL f_0 & LPF f_0 Pre-adjustment
2. Switching position adjustment
3. AGC center level adjustment
4. APC & AEQ adjustment
5. PLL f_0 & LPF f_0 final adjustment
6. Hi8/standard 8mm Switching Position Adjustment
7. CAP FG Offset Adjustment

1. PLL f_0 & LPF f_0 Pre-adjustment (VC-213 board)

Mode	VTR stop
Measurement Point	Display data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 47
Specified Value	Bit values of bit 2, bit 3 and bit 6 are “0”

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 01, set data: 30, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 02, and check that the data changes to “00”.
- 4) Select page: 3, address: 03, and check that bit values of bit2, bit3 and bit6 are “0”.
If bit value of bit 2, bit 3 or bit 6 is “1”, there are errors. (For the error contents, see the following table. For the bit values, refer to “5-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”).

Bit value of page: 3, address: 03	Error contents
bit 6 = 1	LPF f_0 adjustment is defective
bit 3 = 1	PLL f_0 , fine adjustment is defective
bit 2 = 1	PLL f_0 , fine adjustment is defective

If bit value of bit 2 or bit 3 is “1”, select page: C, address: 21, set the following data, and press the PAUSE button, and repeat steps 2) to 4).

	Setting data
When the data of page: C, address: 21 is “CA”.	CE
When the data of page: C, address: 21 is “CE”.	C6
When the data of page: C, address: 21 is “C6”.	D2
When the data of page: C, address: 21 is “D2”.	C2

- 5) Select page: 0, address: 01, and set data: 00.

2. Switching Position Adjustment (VC-213 board)

To obtain normal playback waveform output, adjust the switching position.

Mode	VTR playback
Signal	Digital8 alignment tape : SW/OL standard (WR5-2D)
Measurement Point	Display data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	10, 11, 12, 13
Specified Value	00

Adjusting method:

- 1) Insert the Digital8 SW/OL reference tape and enter the VTR STOP mode.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 3, address: 21, and check that the data is “02”.
Note: If the data of page: 3, address: 21 is other than “72”, the tape top being played. After playing the tape for 1 to 2 seconds, perform step 4) and higher.
- 4) Select page: 3, address: 01, set data: 0D, and press the PAUSE button of the adjustment remote commander.
- 5) Select page: 3, address: 02, and check that the data changes to “00”.
- 6) Select page: 3, address: 03, and check that the data is “00”.
Note: If bit 0 of page: 3, address: 03 data is “1”, the A channel is defective. If bit 1 is “1”, the B channel is defective. Contents of the defect is written into page: C, addresses: 10 and 12. See the following table. (For the bit values, refer to “5-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”).)
- 7) Select page: 0, address: 01, and set data: 00.

When the A channel is defective

Data of page: C, address: 10	Contents of defect
EE	Writing into EEPROM (IC402) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC104 (TRX)

When the B channel is defective

Data of page: C, address: 12	Contents of defect
E8	Adjustment data is out of range
E7	No data is returned from IC104 (TRX)

3. AGC Center Level Adjustment (VC-213 board)

Mode	Camera record and playback
Subject	Arbitrary
Measurement Point	Pin ⑩ of CN910 (RF MON) (Note 1) External trigger : Pin ⑬ of CN910 (DV RF SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	1E
Specified Value	The display data of page: 3, address: 03 is "00"

Note 1: Connect a 75Ω resistor between Pin ⑩ and Pin ⑥ (GND) of CN910.
75Ω resistor (Parts code: 1-247-804-11)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: C, address: 54, set data: C8, and press the PAUSE button of the adjustment remote commander.
- 3) Record the camera signal for a minute.
- 4) Select page: 2, address: 2E, and set data: 01.
- 5) Playback the recorded segment.
- 6) Select page: 3, address: 33, and set data: 08.
- 7) Confirm that the playback RF signal is stable.
- 8) Select page: 3, address: 01, set data: 23, and press the PAUSE button.
- 9) Select page: 3, address: 02, and check that the data is "00".
- 10) Select page: 3, address: 03, and check that the data is "00".
Note 2 : If the data of page: 3, address: 03 is other than "00", adjustment has errors.
- 11) Select page: 3, address: 33, and set data: 00.
- 12) Select page: 2, address: 2E, and set data: 00.
- 13) Select page: C, address: 54, set data: CC, and press the PAUSE button.
- 14) Select page: 0, address: 01, and set data: 00.

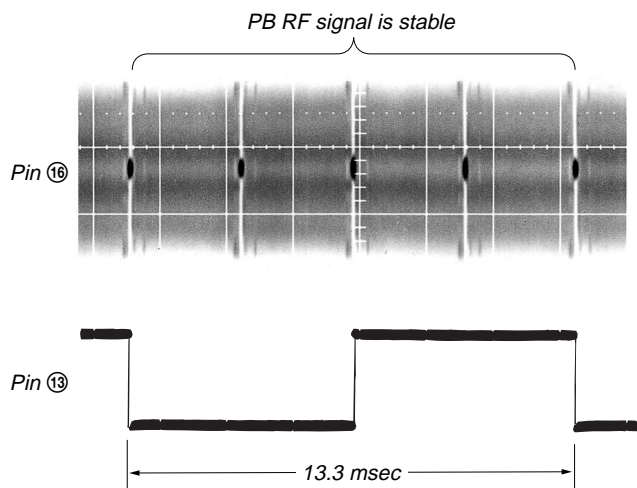


Fig. 5-3-5.

4. APC & AEQ Adjustment (VC-213 board)

Mode	Camera record and playback
Subject	Arbitrary
Measurement Point	Pin ⑩ of CN910 (RF MON) (Note 1) External trigger : Pin ⑬ of CN910 (DV RF SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	18, 19, 1B, 1C, 21, 73
Specified Value	The display data of page: 3, address: 03 is "00"

Note 1: Connect a 75Ω resistor between Pin ⑩ and Pin ⑥ (GND) of CN2904.
75Ω resistor (Parts code: 1-247-804-11)

Note 2: Use a Hi8 MP tape.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: C, address: 54, set data: C8, and press the PAUSE button of the adjustment remote commander.
- 3) Record the camera signal for a minute.
- 4) Select page: 2, address: 2E, and set data: 01.
- 5) Playback the recorded segment.
- 6) Select page: 3, address: 33, and set data: 08.
- 7) Confirm that the playback RF signal is stable.
- 8) Select page: 3, address: 01, set data: 07, and press the PAUSE button.
- 9) Select page: 3, address: 02, and check that the data changes from "07" to "00" in about 20 seconds after pressing the PAUSE button.
- 10) Select page: 3, address: 03, and check that the data is "00".
Note 3: If the data of page: 3, address: 03 is other than "00", adjustment has errors.
- 11) Select page: 3, address: 33, and set data: 00.
- 12) Select page: 2, address: 2E, and set data: 00.
- 13) Select page: C, address: 54, set data: CC, and press the PAUSE button.
- 14) Select page: 0, address: 01, and set data: 00.

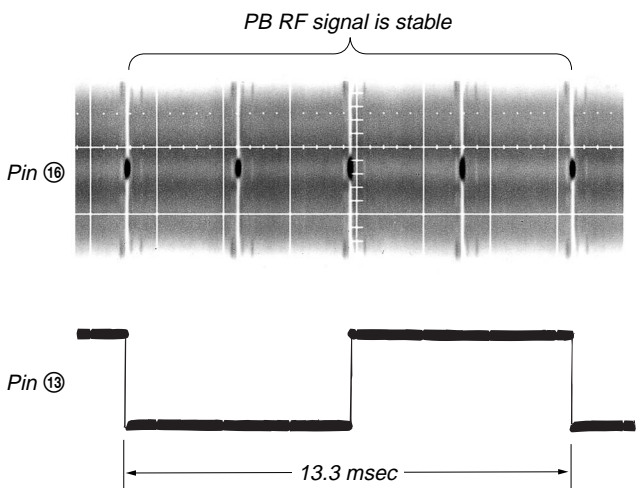


Fig. 5-3-6.

5. PLL f_0 & LPF f_0 Final Adjustment (VC-213 board)

Mode	VTR stop
Signal	Arbitrary
Measurement Point	Display data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 47
Specified Value	Bit values of bit2, bit3 and bit6 are "0"

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 01, set data: 30, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 02, and check that the data changes to "00".
- 4) Select page: 3, address: 03, and check that bit values of bit2, bit3 and bit6 are "0".
If bit value of bit 2, bit 3 or bit 6 is "1", there are errors. (For the error contents, see the following table. For the bit values, refer to "5-4. SERVICE MODE", "4-3. 3. Bit value discrimination".)

Bit value of page: 3, address: 03	Error contents
bit 6 = 1	LPF f_0 adjustment is defective
bit 3 = 1	PLL f_0 , fine adjustment is defective
bit 2 = 1	PLL f_0 , fine adjustment is defective

- 5) Select page: 0, address: 01, and set data: 00.

6. Hi8/standard 8mm Switching Position Adjustment (VC-213 board)

If deviated in this case causes switching noise or jitter on the Hi8/standard 8mm mode played back screen.

Mode	Playback
Signal	Hi8/standard 8mm alignment tape: For tracking adjustment (WR5-1NP(NTSC)) (WR5-1CP(PAL))
Measurement Point	CH1: Pin ⑧ of CN910 (VC RF SWP) CH2: Pin ⑤ of CN910 (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	3E, 3F
Specified Value	$t_1 = 0 \pm 10 \mu\text{sec}$

Adjusting Method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 2C, set data: 20, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 2, address: 2E, and set data: 02.
- 4) Set to the playback mode.
- 5) Select page: F, address: 3E, change the data and minimize "t1", and then press the PAUSE button. (Coarse adjustment)
- 6) Select page: F, address: 3F, change the data and adjust so that the switching position (t1) becomes the specified value. (Fine adjustment)
- 7) Press the PAUSE button.
- 8) Select page: F, address: 2C, set data: 00, and press the PAUSE button.
- 9) Select page: 2, address: 2E, and set data: 00.
- 10) Select page: 0, address: 01, and set data: 00.

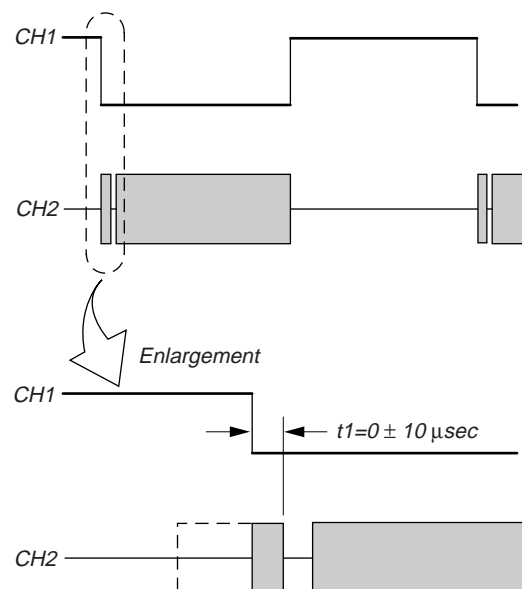


Fig. 5-3-7.

7. CAP FG Offset Adjustment (VC-213 board)

Improve the capstan servo characteristic. If it is not correct, jitters will increase.

Mode	Playback
Signal	Hi8/standard 8mm alignment tape : For checking operation (WR5-5NSP(NTSC)) (WR5-5CSP(PAL))
Measurement Point	Pin ⑮ of CN910 (CAP FG)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	61
Specified value	Duty = $50 \pm 1 \%$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 2E, and set data: 02.
- 3) Set to the playback mode.
- 4) Select page: 6, address: 01, set data: 81, and press the PAUSE button of the adjustment remote commander. (to start up automatic CAP FG offset adjustment.)
- 5) Select page: 6, address: 02, and check that the data is "01".
- 6) Check that Duty of CAP FG signal satisfies the specified value. If not, select page: 6, address: 01, set data: 00, and press the PAUSE button, and then, repeat steps 4) to 6).
- 7) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 8) Select page: 2, address: 2E, and set data: 00.
- 9) Select page: 0, address: 01, and set data: 00.

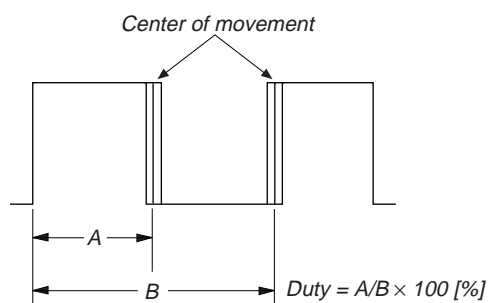


Fig. 5-3-8.

3-4. VIDEO SYSTEM ADJUSTMENTS

3-4-1. Video System Adjustments

Adjusting Procedure:

1. 27MHz/36MHz origin oscillation adjustment
2. Chroma BPF f_0 adjustment
3. S VIDEO OUT Y Level Adjustment
4. S VIDEO OUT chroma level adjustment
5. VIDEO OUT Y, chroma level check
6. Hi8/standard 8mm 14 MHz origin oscillation adjustment
7. BBI PLL adjustment
8. Hi8/standard 8mm Y level adjustment
9. Hi8/standard 8mm chroma level adjustment
10. Hi8/standard 8mm AFC f_0 adjustment
11. Hi8/standard 8mm RP Filter f_0 adjustment

1. 27MHz/36MHz Origin Oscillation Adjustment (VC-213 board)

Set the oscillation frequency of X501.

If deviated, the synchronization will be disrupted and the color will become inconsistent.

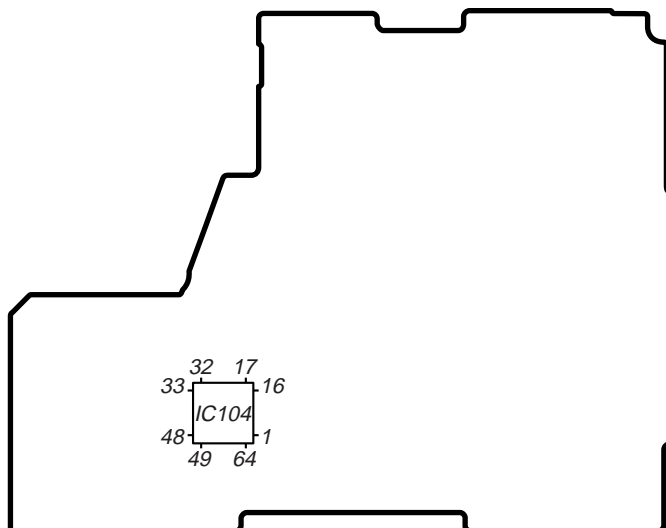
Note: 27MHz 720H model
 36MHz 960H model
 720H model: DCR-TR7000/TRV103/TRV110/TRV110P/TRV203/
 TRV210/TRV310/TRV310P/TRV315
 960H model: DCR-TR7000E/TRV100E/TRV110E/TRV210E/
 TRV310E

Mode	Camera
Measurement Point	Pin ④ of IC104
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	40
Specified Value	$f=13500000 \pm 68\text{Hz}$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 40, change the data and set the clock frequency(f) to the specified value.
- 3) Press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

VC-213 BOARD



2. Chroma BPF f_0 Adjustment (VC-213 board)

Set the center frequency of IC643 chroma band-pass filter.

Mode	VTR stop
Signal	No signal
Measurement Point	CH1: Chroma signal terminal of S VIDEO jack (75Ω terminated) CH2: Y signal terminal of S VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	2B
Specified Value	A = 100mVp-p or less B = 200mVp-p or more

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 11, set data: 10, and press the PAUSE button of the adjustment remote commander.
- 3) Check that the burst signal (B) is output to the chroma signal terminal of S VIDEO jack.
- 4) Select page: 3, address: 0C, set data: 04, and press the PAUSE button.
- 5) Select page: C, address: 2B, and change the data for minimum amplitude of the burst signal level (A).
(The data of address: 2B, should be "00" to "07".)
- 6) Press the PAUSE button.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 8) Check that the burst signal level (B) satisfies the specified value.
- 9) Select page: D, address: 11, set data: 00, and press the PAUSE button.
- 10) Select page: 0, address: 01, and set data: 00.

When the data of page: 3, address: 0C, is 04:

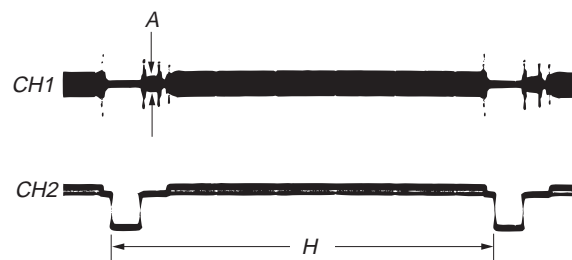


Fig. 5-3-9.

When the data of page: 3, address: 0C, is 00:

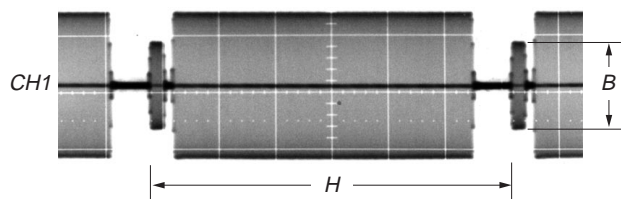


Fig. 5-3-10.

3. S VIDEO OUT Y Level Adjustment (VC-213 board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Y signal terminal of S VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	25
Specified Value	A = 1000 ± 20mV

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 35. After note down the data of this address, set data: 01 to the address.
- 3) Select page: D, address: 11, set data: 10, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 3, address: 0C, set data: 02, and press the PAUSE button.
- 5) Select page: C, address: 25, change the data and set the Y signal level (A) to the specified value.
- 6) Press the PAUSE button.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 8) Select page: D, address: 11, set data: 00, and press the PAUSE button.
- 9) Select page: 2, address: 35. and set the data that is noted down at step 2).
- 10) Select page: 0, address: 01, and set data: 00.

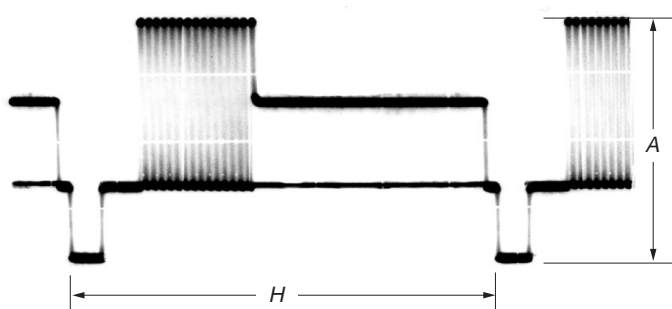


Fig. 5-3-11.

4. S VIDEO OUT Chroma Level Adjustment (VC-213 board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Chroma signal terminal of S VIDEO jack (75Ω terminated) External trigger: Y signal terminal of S VIDEO jack
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	26, 27
Specified Value	Cr level: A = 714 ± 14mV(NTSC) A = 700 ± 14mV(PAL) Cb level: B = 714 ± 14mV(NTSC) B = 700 ± 14mV(PAL) Burst level: C = 286 ± 6mV(NTSC) C = 300 ± 6mV(PAL)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 35. After note down the data of this address, set data: 01 to the address.
- 3) Select page: D, address: 11, set data: 10, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 3, address: 0C, set data: 02, and press the PAUSE button.
- 5) Select page: C, address: 26, change the data and set the Cr signal level (A) to the specified value.
- 6) Press the PAUSE button.
- 7) Select page: C, address: 27, change the data and set the Cb signal level (B) to the specified value.
- 8) Press the PAUSE button.
- 9) Check that the burst signal level (C) is satisfied the specified value.
- 10) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 11) Select page: D, address: 11, set data: 00, and press the PAUSE button.
- 12) Select page: 2, address: 35. and set the data that is noted down at step 2).
- 13) Select page: 0, address: 01, and set data: 00.

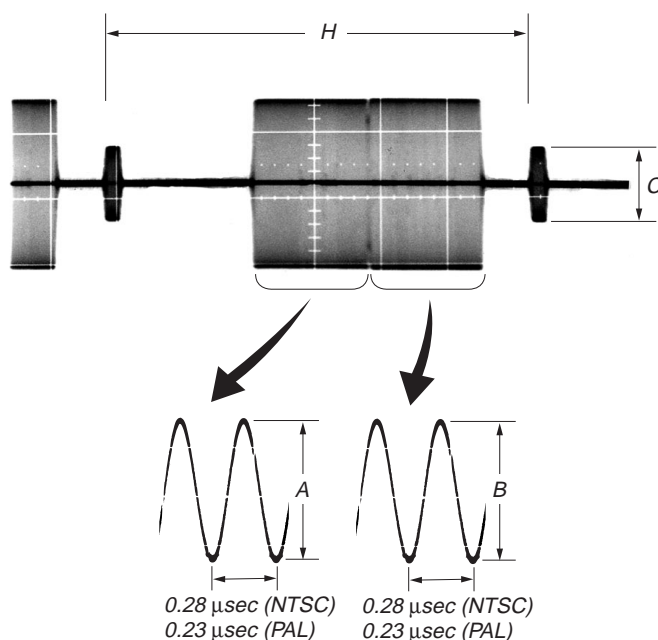


Fig. 5-3-12.

5. VIDEO OUT Y, Chroma Level Check (VC-213 board)

Mode	Camera
Subject	Arbitrary
Measurement Point	VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Specified Value	Sync level: A = $286 \pm 18\text{mV(NTSC)}$ A = $300 \pm 18\text{mV(PAL)}$ Burst level: B = $286 \pm 18\text{mV(NTSC)}$ B = $300 \pm 18\text{mV(PAL)}$

Adjusting method:

- 1) Select page: 0, address: 01, set data: 01.
- 2) Select page: 2, address: 35. After note down the data of this address, set data: 01 to the address.
- 3) Select page: D, address: 11, set data: 10, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 3, address: 0C, set data: 02, and press the PAUSE button.
- 5) Check that the sync signal level (A) satisfies the specified value.
- 6) Check that the burst signal level (B) satisfies the specified value.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 8) Select page: D, address: 11, set data: 00, and press the PAUSE button.
- 9) Select page: 2, address: 35. and set the data that is noted down at step 2).
- 10) Select page: 0, address: 01, set data: 00.

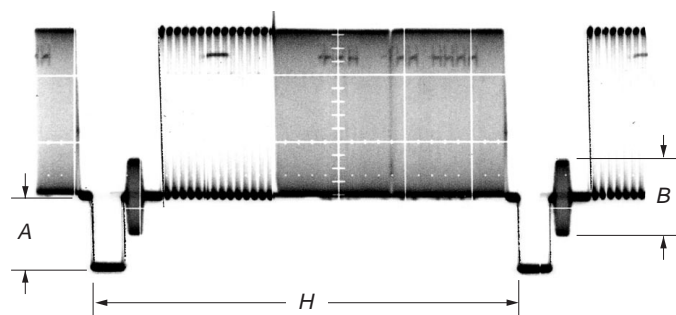


Fig. 5-3-13.

6. Hi8/standard 8mm 14 MHz Origin Oscillation Adjustment (VC-213 board)

Set the oscillation frequency of X251 for the Hi8/standard 8mm playback operation.

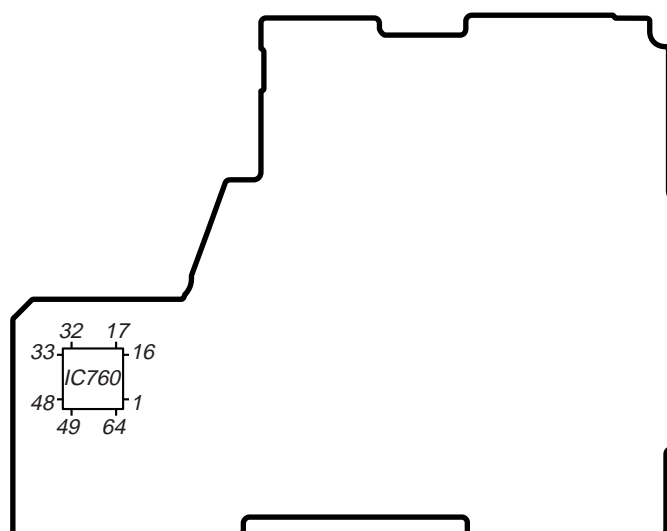
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③② of IC760
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	41
Specified Value	f=3579545 ± 17Hz (NTSC) f=4433618 ± 22Hz (PAL)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0D, set data: 06, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 63, set data: 02.
- 4) Select page: 6, address: 6A, set data: 01.
- 5) Select page: 6, address: 6B, set data: 04.
- 6) Select page: 6, address: 6F, set data: 01.
- 7) Select page: F, address: 41, change the data and set the clock frequency (f) to the specified value.
- 8) Press the PAUSE button.
- 9) Select page: 3, address: 0D, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 10) Select page: 6, address: 63, set data: 00.
- 11) Select page: 6, address: 6A, set data: 00.
- 12) Select page: 6, address: 6B, set data: 00.
- 13) Select page: 6, address: 6F, set data: 00.
- 14) Select page: 0, address: 01, and set data: 00.

VC-213 BOARD



7. BBI PLL Adjustment (VC-213 board)

Set the VCO center level of the video input circuit (IC601).

Mode	VTR stop
Signal	No signal
Measurement Point	Display data of page: 3, address: 04
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	42
Specified Value	08 or 09 or 0A

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0D, set data: 04, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 63, set data: 02.
- 4) Select page: 6, address: 6A, set data: 01.
- 5) Select page: 6, address: 6B, set data: 04.
- 6) Select page: 6, address: 6F, set data: 01.
- 7) Select page: 3, address: 0C, set data: 80, and press the PAUSE button.
- 8) Select page: F, address: 42, and set data: 00, and press the PAUSE button.
- 9) Select page: 3, address: 04, and check. If the data is "08" or "09" or "0A", proceed to step 12).
- 10) Select page: F, address: 42, add "10" (hexadecimal) to the data and press the PAUSE button.
Note: If the data of page: F, address: 42 is "F0", change the data to "FF", and press the PAUSE button.
- 11) Select page: 3, address: 04, and check the data satisfies the specified value. If not repeat steps 10) to 11).
- 12) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 13) Select page: 3, address: 0D, set data: 00, and press the PAUSE button.
- 14) Select page: 6, address: 63, set data: 00.
- 15) Select page: 6, address: 6A, set data: 00.
- 16) Select page: 6, address: 6B, set data: 00.
- 17) Select page: 6, address: 6F, set data: 00.
- 18) Select page: 0, address: 01, and set data: 00.

8. Hi8/standard 8mm Y Level Adjustment (VC-213 board)

Set the Hi8/standard 8mm PB Y signal level. (Adjust the D/A converter out put level of IC251.)

Mode	VTR stop
Signal	No signal
Measurement Point	Y signal terminal of S VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	69
Specified Value	A=589 ± 5mV (NTSC) A=578 ± 5mV (PAL)

Note : Insert a plug into the S video terminal.

Adjusting method:

- 1) Close the cassette compartment without inserting a cassette.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: F, address: 2C, set data: 01, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: D, address: 10, set data: 12, and press the PAUSE button.
- 5) Select page: 2, address: 10, set data: 02.
- 6) Select page: 2, address: 2E, set data: 02.
- 7) Set the playback mode without inserting a cassette.
- 8) Select page: 3, address: 0D, set data: 04, and press the PAUSE button.
- 9) Select page: 6, address: 63, set data: 02.
- 10) Select page: F, address: 69, change the data and set the level (A) between the pedestal and white to the specified value.
- 11) Press the PAUSE button.
- 12) Select page: F, address: 2C, set data: 00, and press the PAUSE button.
- 13) Select page: D, address: 10, set data: 00, and press the PAUSE button.
- 14) Select page: 2, address: 2E, set data: 00.
- 15) Select page: 3, address: 0D, set data: 00.
- 16) Select page: 6, address: 63, set data: 00.
- 17) Select page: 0, address: 01, and set data: 00.

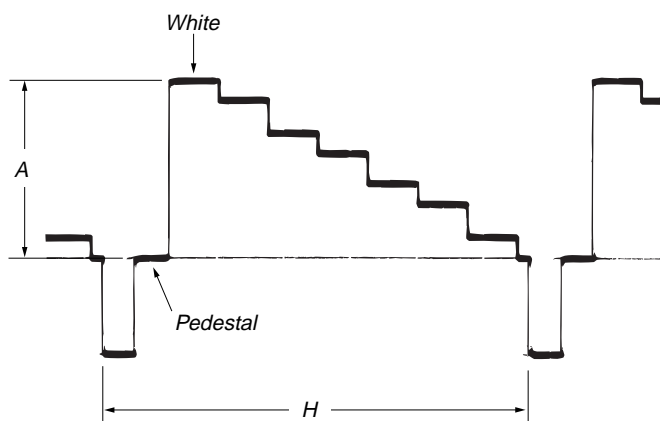


Fig. 5-3-14.

9. Hi8/standard 8mm Chroma Level Adjustment (VC-213 board)

Set the Hi8/standard 8mm PB Chroma signal level. (Adjust the D/A converter output level of IC251.)

Mode	VTR stop
Signal	No signal
Measurement Point	Chroma signal terminal of S VIDEO terminal (75Ω terminated) External trigger : Y signal terminal of S VIDEO terminal
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	6B
Specified Value	A=286 ± 5mV (NTSC) A=300 ± 5mV (PAL)

Note : Insert a plug into the S video terminal.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 11, set data: 10, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 61, set data: 30.
- 4) Select page: 3, address: 0D, set data: 02, and press the PAUSE button.
- 5) Select page: 6, address: 6F, set data: 01.
- 6) Select page: F, address: 6B, change the data and set the burst level (A) to the specified value.
- 7) Press the PAUSE button.
- 8) Select page: D, address: 11, set data: 00, and press the PAUSE button.
- 9) Select page: 3, address: 0D, set data: 00, and press the PAUSE button.
- 10) Select page: 6, address: 61, set data: 00.
- 11) Select page: 6, address: 6F, set data: 00.
- 12) Select page: 0, address: 01, and set data: 00.

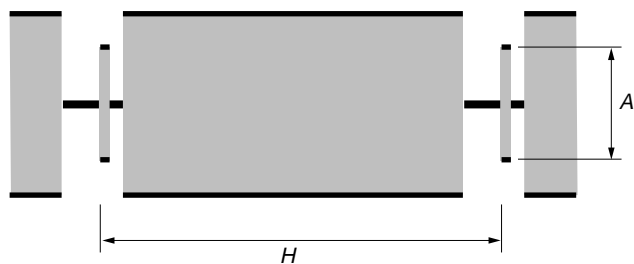


Fig. 5-3-15.

10. Hi8/standard 8mm AFC f₀ Adjustment (VC-213 board)

Adjust the pull-in range of the clock generator (IC251) for A/D conversion during Hi8/standard 8mm playback.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ② of CN910 (AFC f0)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	6A
Specified Value	A=2.00 ± 0.05Vdc

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0D, set data: 04, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 63, set data: 04.
- 4) Select page: 6, address: 6F, set data: 01.
- 5) Select page: F, address: 6A, change the data and set the DC voltage (A) to the specified value.
- 6) Press the PAUSE button.
- 7) Select page: 3, address: 0D, set data: 00, and press the PAUSE button.
- 8) Select page: 6, address: 63, set data: 00.
- 9) Select page: 6, address: 6F, set data: 00.
- 10) Select page: 0, address: 01, and set data: 00.

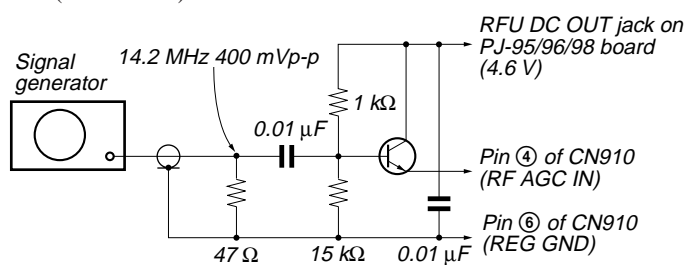
11. Hi8/standard 8mm RP Filter f_0 Adjustment (VC-213 board)

Adjust the LPF of the playback RF amplifier (IC201).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑦ of CN910 (RF AGC OUT)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	6E
Specified Value	A= Minimum

Connection:

- 1) Input a 14.2MHz, 400mVp-p CW signal to Pin ④ of CN910 (RF AGC IN).



Transistor : General NPN transistor (2SC403, etc)

47 Ω resistor : 1-249-401-11

1 kΩ resistor : 1-249-417-11

15 kΩ resistor : 1-249-431-11

0.01 μF capacitor : 1-101-004-00

Fig. 5-3-16.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 61, set data: 04.
- 3) Select page: 6, address: 6F, set data: 01.
- 4) Select page: F, address: 6E, change the data and minimize the 14.2MHz signal level (A).
- 5) Press the PAUSE button of the adjustment remote commander.
- 6) Select page: 6, address: 61, set data: 00.
- 7) Select page: 6, address: 6F, set data: 00.
- 8) Select page: 0, address: 01, and set data: 00.

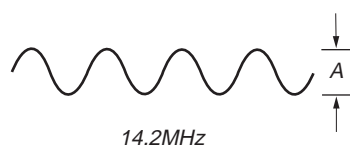


Fig. 5-3-17.

3-4-2. BIST Check

1. Playback System Check

1-1. Preparation for Playback

- 1) Set the POWER switch to VTR (or PLAYER) position.
- 2) Connect the adjusting remote commander and set the HOLD switch to ON (SERVICE) position.
- 3) Playback the BIST check tape. (WR5-6ND(NTSC), WR5-6CD(PAL))

Note: Perform the following checks in the playback mode.

1-2. IC104(TRX) BIST(PB) Check

- 1) Select page: 3, address: 12, set data: 04, and press the PAUSE button.
- 2) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 3) Select page: 3, address: 13, set data: 02, and press the PAUSE button.
- 4) When the playback system from IC104(TRX) to IC302(TFD) is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data		
16	63	75	59
17	84	07	01

PAL model

Address	Data		
16	86	AA	90
17	35	33	B6

1-3. IC302(TFD) BIST(PB) Check

- 1) Select page: 3, address: 40, set data: 0F, and press the PAUSE button.
- 2) Select page: 3, address: 40, set data: 00, and press the PAUSE button.
- 3) When the playback system from IC302(TFD) to IC301(SFD) is normal, the display data (combination data) of page: 3, address: 41 and 42 agrees with any combination as shown below.

NTSC model

Address	Data
41	26
42	A1

PAL model

Address	Data
41	69
42	73

1-4. IC301(SFD) BIST(PB) Check

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: C, address: AC, set data: 21, and press the PAUSE button.
- 3) Select page: C, address: AD, set data: 01 (NTSC) or data: 03 (PAL), and press the PAUSE button.
- 4) Select page: 3, address: 11, set data: 04, and press the PAUSE button.
- 5) Select page: 3, address: 12, set data: 08, and press the PAUSE button.
- 6) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 7) Select page: 3, address: 13, set data: 03, and press the PAUSE button.

- 8) When the playback system from IC301(SFD) to IC702 (ADC&DAC) is normal, the display data (combination data) of page: 3, address: 14 and 15 agrees with any combination as shown below.

NTSC model

Address	Data
14	41
15	81

PAL model

Address	Data
14	2D
15	7C

- 9) When the playback system from IC301(SFD) to IC303(LIP) is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data
16	E4
17	B5

PAL model

Address	Data
16	1C
17	A6

- 10) When the playback system from IC302(TFD) to IC301(SFD) is normal, the display data (combination data) of page: 3, address: 18 and 19 agrees with any combination as shown below.

NTSC model

Address	Data
18	72
19	F8

PAL model

Address	Data
18	CC
19	A7

- 11) Select page: 3, address: 11, set data: 80, and press the PAUSE button.
- 12) Select page: 3, address: 12, set data: 08, and press the PAUSE button.
- 13) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 14) Select page: 3, address: 13, set data: 03, and press the PAUSE button.
- 15) When the playback system from IC302(TFD) to IC301(SFD) is normal, the display data (combination data) of page: 3, address: 18 and 19 agrees with any combination as shown below.

NTSC model

Address	Data
18	E6
19	C3

PAL model

Address	Data
18	DB
19	C0

- 16) When the playback system from IC301(SFD) to IC351(VFD) is normal, the display data (combination data) of page: 3, address: 1A and 1B agrees with any combination as shown below.

NTSC model

Address	Data
1A	12
1B	43

PAL model

Address	Data
1A	90
1B	CE

- 17) Select page: C, address: AC, set data: 20, and press the PAUSE button.
- 18) Select page: C, address: AD, set data: 00 (NTSC) or data: 02 (PAL), and press the PAUSE button.
- 19) Select page: 0, address: 01, and set data: 00.

1-5. IC351(VFD) BIST(PB) Check

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: C, address: 51, set data: 0F, and press the PAUSE button.

•VBUS/EX BIST(PB) Check

- 3) Select page: 3, address: 10, set data: 00, and press the PAUSE button.
- 4) Select page: 3, address: 12, set data: 10, and press the PAUSE button.
- 5) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 6) Select page: 3, address: 13, set data: 04, and press the PAUSE button.
- 7) When the playback system from IC301(SFD) to IC351(VFD) is normal, the display data (combination data) of page: 3, address: 14 and 15 agrees with any combination as shown below.

NTSC model

Address	Data
14	12
15	43

PAL model

Address	Data
14	90
15	CE

- 8) When the playback system from IC351(VFD) to IC251 is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data
16	FB
17	F4

PAL model

Address	Data
16	54
17	ED

•UPY Y BIST(PB) Check

- 9) Select page: 3, address: 10, set data: 88, and press the PAUSE button.
- 10) Select page: 3, address: 12, set data: 10, and press the PAUSE button.
- 11) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 12) Select page: 3, address: 13, set data: 04, and press the PAUSE button.
- 13) When the playback system from IC351(VFD) to IC4501,5502 (LCD DRIVER) is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data
16	9A
17	13

PAL model

Address	Data
16	03
17	C9

•UPY Cr BIST(PB) Check

- 14) Select page: 3, address: 10, set data: 89, and press the PAUSE button.
- 15) Select page: 3, address: 12, set data: 10, and press the PAUSE button.
- 16) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 17) Select page: 3, address: 13, set data: 04, and press the PAUSE button.
- 18) When the playback system from IC351(VFD) to IC4501,5502 (LCD DRIVER) is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data
16	1C
17	60

PAL model

Address	Data
16	14
17	A7

•UPY Cb BIST(PB) Check

- 19) Select page: 3, address: 10, set data: 8A, and press the PAUSE button.
- 20) Select page: 3, address: 12, set data: 10, and press the PAUSE button.
- 21) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 22) Select page: 3, address: 13, set data: 04, and press the PAUSE button.
- 23) When the playback system from IC351(VFD) to IC4501,5502 (LCD DRIVER) is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data
16	92
17	5A

PAL model

Address	Data
16	B8
17	67

•ENC Ya BIST(PB) Check

- 24) Select page: 3, address: 10, set data: 8B, and press the PAUSE button.
- 25) Select page: 3, address: 12, set data: 10, and press the PAUSE button.
- 26) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 27) Select page: 3, address: 13, set data: 04, and press the PAUSE button.
- 28) When the playback system from IC351(VFD) to IC643 (AOI) is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data
16	3C
17	D2

PAL model

Address	Data
16	69
17	21

•ENC Yb BIST(PB) Check

- 29) Select page: 3, address: 10, set data: 8C, and press the PAUSE button.
- 30) Select page: 3, address: 12, set data: 10, and press the PAUSE button.
- 31) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 32) Select page: 3, address: 13, set data: 04, and press the PAUSE button.
- 33) When the playback system from IC351(VFD) to IC643 (AOI) is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data
16	83
17	9E

PAL model

Address	Data
16	CC
17	ED

• **ENC Ca BIST(PB) Check**

- 34) Select page: 3, address: 10, set data: 8D, and press the PAUSE button.
- 35) Select page: 3, address: 12, set data: 10, and press the PAUSE button.
- 36) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 37) Select page: 3, address: 13, set data: 04, and press the PAUSE button.
- 38) When the playback system from IC351(VFD) to IC643 (AOI) is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data	
16	FE	22
17	68	CA

PAL model

Address	Data	
16	70	43
17	D5	E4

• **ENC Cb BIST(PB) Check**

- 39) Select page: 3, address: 10, set data: 8E, and press the PAUSE button.
- 40) Select page: 3, address: 12, set data: 10, and press the PAUSE button.
- 41) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 42) Select page: 3, address: 13, set data: 04, and press the PAUSE button.
- 43) When the playback system from IC351(VFD) to IC643 (AOI) is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data	
16	B2	DE
17	E7	EE

PAL model

Address	Data	
16	ED	9A
17	CB	1E

- 44) Select page: C, address: 51, set data: 03, and press the PAUSE button.
- 45) Select page: 0, address: 01, and set data: 00.

2. Recording System Check

2-1. Preparations for recording

- 1) Playback the BIST check tape.(WR5-6ND(NTSC), WR5-6CD(PAL))
- 2) Select page: 3, address: 10, set data: C0, and press the PAUSE button.
- 3) Select page: 3, address: 11, set data: 07, and press the PAUSE button.
- 4) Enter the stop mode.
- 5) While keep the HOLD switch of the adjusting remote commander at ON(SERVICE) position, eject the BIST check tape and insert a tape for recording in place of the tape.
- 6) Enter the camera recording mode.

Note: Perform the following checks in the camera recording mode.

2-2. IC351(VFD) BIST(REC) Check

- 1) Select page: 3, address: 12, set data: 10, and press the PAUSE button.
- 2) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 3) Select page: 3, address: 13, set data: 04, and press the PAUSE button.
- 4) When the recording system from IC351(VFD) to IC301(SFD) is normal, the display data (combination data) of page: 3, address: 14 and 15 agrees with any combination as shown below.

NTSC model

Address	Data
14	D5
15	0B

PAL model

Address	Data
14	34
15	8A

2-3. IC301(SFD) BIST(REC) Check

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: C, address: AC, set data: 21, and press the PAUSE button.
- 3) Select page: C, address: AD, set data: 01 (NTSC) or data: 03 (PAL), and press the PAUSE button.
- 4) Select page: 3, address: 12, set data: 08, and press the PAUSE button.
- 5) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 6) Select page: 3, address: 13, set data: 03, and press the PAUSE button.
- 7) When the recording system from IC301(SFD) to IC303(LIP) is normal, the display data (combination data) of page: 3, address: 16 and 17 agrees with any combination as shown below.

NTSC model

Address	Data
16	00 BC 4C F0
17	15 CE CF 14

PAL model

Address	Data
16	2D A2 61 EE
17	F5 7B 2F 1A

- 8) When the recording system from IC301(SFD) to IC302(TFD) is normal, the display data (combination data) of page: 3, address: 18 and 19 agrees with any combination as shown below.

NTSC model

Address	Data
18	F7 4F 54 EC
19	F6 69 80 1F

PAL model

Address	Data
18	6C 23 01 4E
19	C7 76 0E BF

- 9) Select page: 3, address: 11, set data: 87, and press the PAUSE button.
- 10) Select page: 3, address: 12, set data: 08, and press the PAUSE button.
- 11) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 12) Select page: 3, address: 13, set data: 03, and press the PAUSE button.
- 13) When the recording system from IC301(SFD) to IC302(TFD) is normal, the display data (combination data) of page: 3, address: 18 and 19 agrees with any combination as shown below.

NTSC model

Address	Data
18	C2 49
19	DB 21

PAL model

Address	Data
18	F3 80
19	CA 79

- 14) When the recording system from IC351(VFD) to IC301(SFD) is normal, the display data (combination data) of page: 3, address: 1A and 1B agrees with any combination as shown below.

NTSC model

Address	Data
1A	D5
1B	0B

PAL model

Address	Data
1A	34
1B	8A

- 15) Select page: C, address: AC, set data: 20, and press the PAUSE button.
- 16) Select page: C, address: AD, set data: 00 (NTSC) or data: 02 (PAL), and press the PAUSE button.
- 17) Select page: 0, address: 01, and set data: 00.

2-4. IC302(TFD) BIST(REC) Check

- 1) Select page: 3, address: 40, set data: 0F, and press the PAUSE button.
- 2) Select page: 3, address: 40, set data: 00, and press the PAUSE button.
- 3) When the recording system from IC301(SFD) to IC302(TFD) is normal, the display data (combination data) of page: 3, address: 41 and 42 agrees with any combination as shown below.

NTSC model

Address	Data
41	C2 7A 61 D9
42	42 DD 34 AB

PAL model

Address	Data
41	55 1A 38 77
42	B5 04 7C CD

- 4) When the recording system from IC302(TFD) to IC104(TRX) is normal, the display data (combination data) of page: 3, address: 43 and 44 agrees with any combination as shown below.

NTSC model

Address	Data
43	18 C8 E0 57
44	F0 FB 02 D6

PAL model

Address	Data
43	F6 A2 48 81
44	2A E3 49 3D

2-5. IC104(TRX) BIST(REC) Check

- 1) Select page: 3, address: 12, set data: 04, and press the PAUSE button.
- 2) Select page: 3, address: 12, set data: 00, and press the PAUSE button.
- 3) Select page: 3, address: 13, set data: 02, and press the PAUSE button.
- 4) When the recording system from IC302(TFD) to IC104(TRX) is normal, the display data (combination data) of page: 3, address: 14 and 15 agrees with any combination as shown below.

NTSC model

Address	Data	
14	96	BC
15	D1	0E

PAL model

Address	Data	
14	27	B5
15	8D	61

3-5. IR TRANSMITTER ADJUSTMENTS

Adjust using a IR receiver jig (J-6082-383-A).

Switch setting:

LASER LINK ON (Red LED is lit)

1. IR Video Carrier Frequency Adjustment (VC-213 board)

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑤ of CN003 of IR receiver jig (RF) (Or Pin ⑩ of IC644 of VC-213 board)
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	68
Specified Value	$f = 11.85 \pm 0.05$ MHz

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

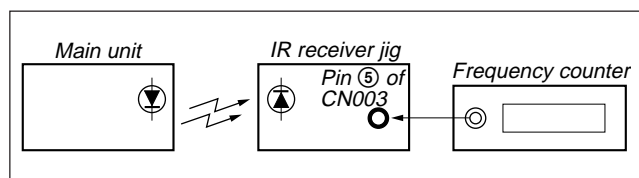


Fig. 5-3-18.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 08, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: F, address: 68, change the data, and set the video carrier frequency (f) to the specified value.
- 4) Press the PAUSE button.
- 5) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 6) Select page: 0, address: 01, and set data: 00.

2. IR Video Deviation Adjustment (VC-213 board)

Mode	VTR stop
Signal	No signal
Measurement Point	VIDEO OUT terminal of IR receiver jig (Terminated at 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	66
Specified Value	$A = 0.82 \pm 0.04$ V

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

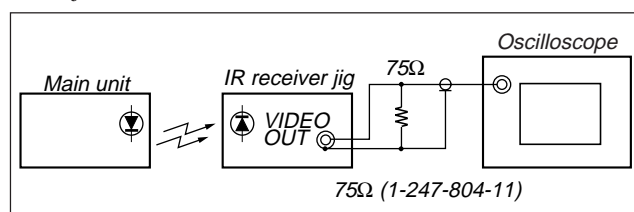


Fig. 5-3-19.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: F, address: 66, and change the data, set the video signal amplitude (A) to the specified value.
- 4) Press the PAUSE button.
- 5) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 6) Select page: 0, address: 01, and set data: 00.

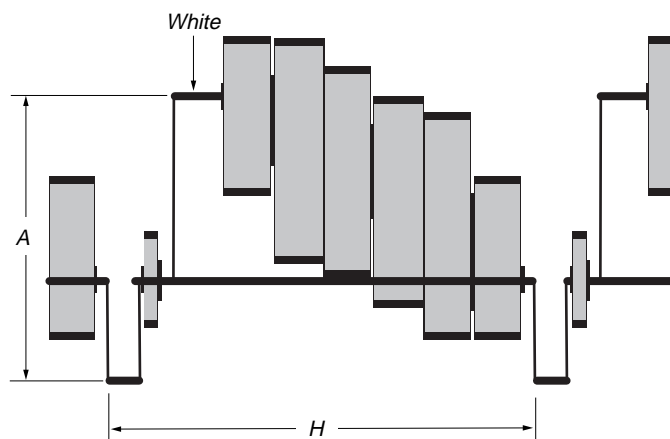


Fig. 5-3-20.

3. IR Audio Deviation Adjustment (VC-213 board)

Mode	VTR stop
Signal	Audio signal : 400Hz, -7.5dBs : L and R of AUDIO terminal Video signal : Color bar signal : VIDEO terminal
Measurement Point	AUDIO L terminal and AUDIO R terminal of IR receiver jig (Terminated at $47\text{k}\Omega$)
Measuring Instrument	Audio level meter
Adjustment Page	F
Adjustment Address	67
Specified Value	Signal level: $-7.5 \pm 1.0\text{ dBs}$ Level difference of L and R: Below 2dB

Note: TR model: DCR-TR7000/TR7000E/TR7100E

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Only for the TR model (Note), Select page: D, address: 1B, set data: 01, and press the PAUSE button of the adjustment remote commander.
- 3) Connect the audio level meter to the AUDIO L terminal of the IR receiver jig.
- 4) Select page: F, address: 67, change the data and set the 400Hz audio signal level to the specified value.
- 5) Press the PAUSE button.
- 6) Connect the audio level meter to the AUDIO R terminal of the IR receiver jig.
- 7) Check that the 400Hz audio signal level is within the specified value. If outside, repeat from step 3).
- 8) Only for the TR model (Note), Select page: D, address: 1B, set data: 00, and press the PAUSE button.
- 9) Select page: 0, address: 01, and set data: 00.

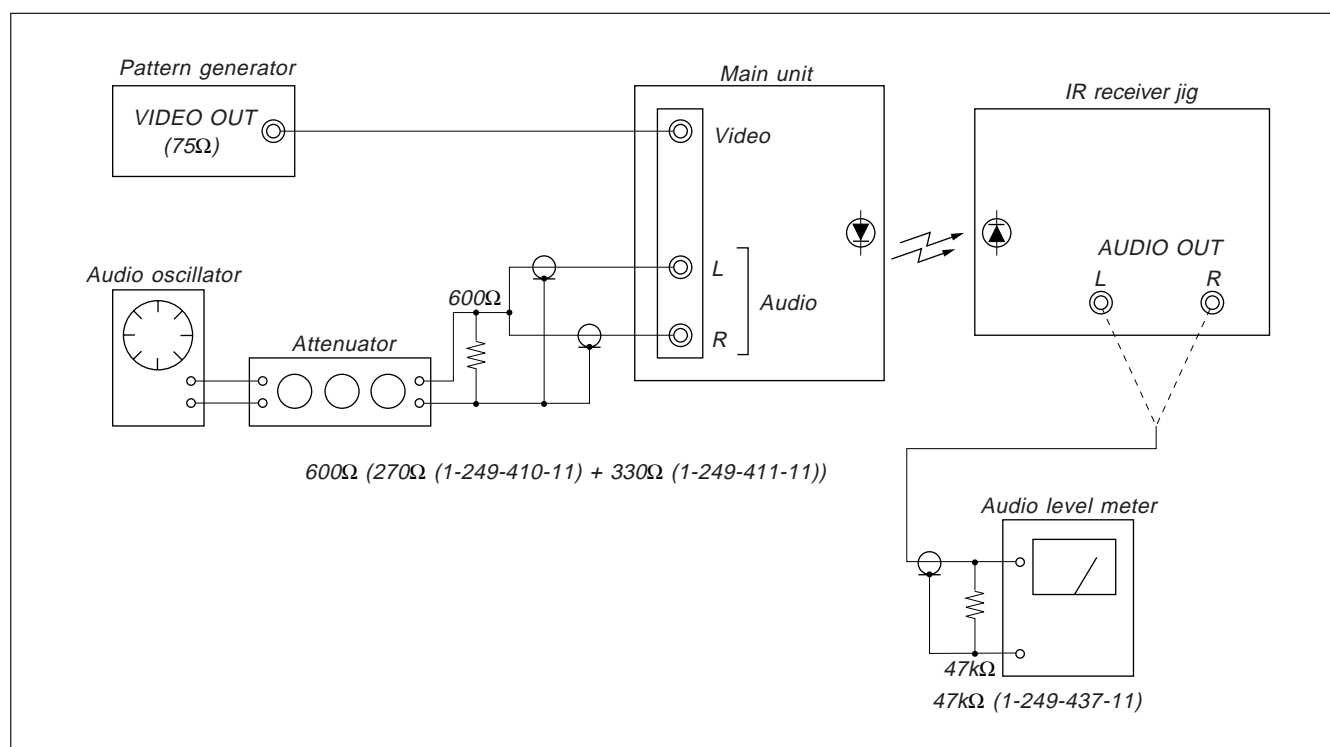


Fig. 5-3-21.

3-6. AUDIO SYSTEM ADJUSTMENTS

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 5-3-22.

[Adjustment Procedure]

- 1) Hi8/standard 8mm AFM BPF f_0 adjustment
- 2) Hi8/standard 8mm AFM 1.5MHz deviation adjustment
- 3) Hi8/standard 8mm AFM 1.7MHz deviation adjustment
- 4) Digital8 playback level check
- 5) Overall level characteristics check
- 6) Overall distortion check
- 7) Overall noise level check
- 8) Overall separation check

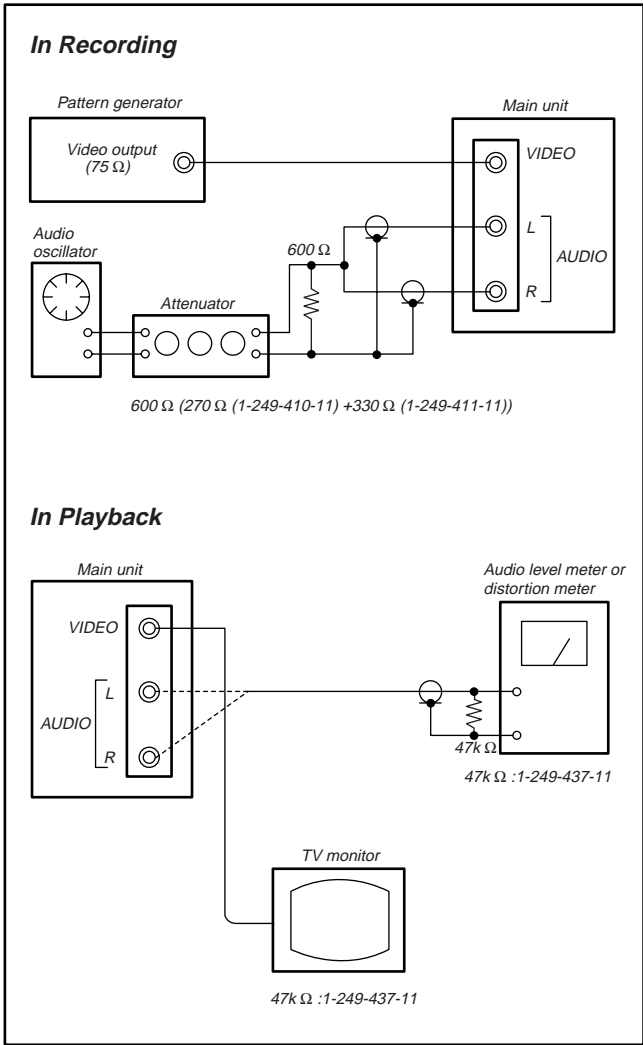


Fig. 5-3-22.

1. Hi8/standard 8mm AFM BPF f_0 Adjustment (VC-213 board)

Sets the BPF passing frequency of IC760 so that the AFM signal can separate from the playback RF signal properly. If deviated, the mono/stereo mode will be differentiated incorrectly, and noises and distortions will increase during high volume playback.

Mode	Playback
Signal	Hi8/standard 8mm alignment tape: For BPF adjustment (WR5-11NS (NTSC)) (WR5-11CS (PAL))
Measurement Point	Audio output terminal left or right
Measuring Instrument	Distortion meter
Adjustment Page	F
Adjustment Address\	64
Specified Value	The Main and Sub channel distortion rate should be almost the same (within $\pm 1\%$) and minimum.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Set the Hi-Fi sound switch (menu display) to "2".
- 3) Select page: F, address: 64, change the data and minimize the distortion rate.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Set the Hi-Fi sound switch (menu display) to "1".
- 6) Select page: F, address: 64, change the data and minimize the distortion rate.
- 7) Press the PAUSE button of the adjustment remote commander.
- 8) Repeat steps 2) to 7) and set the data of address: 64 so that the distortions rates when the Hi-Fi sound switch is set to "2" and set to "1" respectively are almost the same and minimum.
- 9) Press the PAUSE button of the adjustment remote commander.
- 10) Select page: 0, address: 01, and set data: 00.
- 11) Set the Hi-Fi sound switch to "STEREO".

2. Hi8/standard 8mm AFM 1.5 MHz Deviation Adjustment (VC-213 board)

Adjust to the optimum 1.5MHz audio FM signal deviation.
If the adjustment is not correct, its playback level will differ from that of other units.

Mode	Playback
Signal	Hi8/standard 8mm alignment tape: For checking AFM stereo operation Monoscope section (WR5-9NS(NTSC)) (WR5-9CS(PAL))
Measurement Point	Audio output terminal left or right
Measuring Instrument	Audio level meter
Adjustment Page	F
Adjustment Address	62
Specified Value	$-7.5 \pm 2.0\text{dBs}$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Set the Hi-Fi sound switch (menu display) to "1".
- 3) Select page: F, address: 62, change the data and set the 400Hz signal level to the specified value.
- 4) Press the PAUSE button.
- 5) Set the Hi-Fi sound switch (menu display) to "STEREO".
- 6) Select page: 0, address: 01, and set data: 00.

3. Hi8/standard 8mm AFM 1.7 MHz Deviation Adjustment (VC-213 board)

Adjust to the optimum 1.7MHz audio FM signal deviation.
If improper, this causes deteriorated separation (with stereo signal).

Mode	Playback
Signal	Hi8/standard 8mm alignment tape: For checking AFM stereo operation Monoscope section (WR5-9NS(NTSC)) (WR5-9CS(PAL))
Measurement Point	Audio output terminal left or right
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	63
Specified Value	$-7.5 \pm 2.0\text{dBs}$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Set the Hi-Fi sound switch (menu display) to "2".
- 3) Select page: F, address: 63, change the data and set the 1kHz signal level to the specified value.
- 4) Press the PAUSE button.
- 5) Set the Hi-Fi sound switch (menu display) to "STEREO".
- 6) Select page: 0, address: 01, and set data: 00.

4. Digital8 Playback Level Check

Mode	VTR playback
Signal	Digital8 alignment tape: For audio operation check (WR5-3ND (NTSC)) (WR5-3CD (PAL))
Measurement Point	Audio output terminal left or right
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: $1\text{ kHz}, +3.0 \pm 2.0\text{dBs}$ 48 kHz mode: $1\text{ kHz}, +3.0 \pm 2.0\text{dBs}$ 44.1 kHz mode: The 7.35kHz signal level during EMP OFF is $+2.0 \pm 2.0\text{dBs}$. The 7.35kHz signal level during EMP ON is $-6 \pm 2\text{ dB}$ from the signal level during EMP OFF.

Checking Method:

- 1) Check that the playback signal level is the specified value.

5. Overall Level Characteristics Check

Mode	Camera recording and playback
Signal	400Hz, -66dBs signal: MIC jack left and right
Measurement Point	Audio output terminal left or right
Measuring Instrument	Audio level meter
Specified Value	$-7.5 \pm 3.0\text{dBs}$

Checking Method:

- 1) Input the 400Hz, -66dBs signal in the MIC jack.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the 400Hz signal level is the specified value.

6. Overall Distortion Check

Mode	Camera recording and playback
Signal	400Hz, -66dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio distortion meter
Specified Value	Below 0.4% (200Hz to 6kHz BPF ON)

Checking Method:

- 1) Input the 400Hz, -66dBs signal in the MIC jack.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the distortion is the specified value.

7. Overall Noise Level Check

Mode	Camera recording and playback
Signal	No signal: Insert a shorting plug in the MIC jack
Measurement Point	Audio output terminal left or right
Measuring Instrument	Audio level meter
Specified Value	Below -45dBs (IHF-A filter ON, 20kHz LPF ON)

Checking Method:

- 1) Insert a shorting plug in the MIC jack.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the noise level is the specified value.

8. Overall Separation Check

Mode	Camera recording and playback
Signal	400Hz, -66dBs signal: MIC jack <right> [left] (Connect the MIC jack <left> [right] to GND)
Measurement Point	Audio output terminal <left> [right]
Measuring Instrument	Audio level meter
Specified Value	Below -40dBs

< > : Left channel check

[] : Right channel check

Checking Method:

- 1) Input the 400Hz, -66dBs signal in the <right> [left] terminal of the MIC jack only.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the signal level of the audio output <left> [right] terminal is the specified value.

5-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the Adjustment Remote Commander

- 1) Connect the adjustment remote commander to the LANC terminal.
- 2) Set the HOLD switch of the adjustment remote commander to “HOLD” (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 5-4-1.

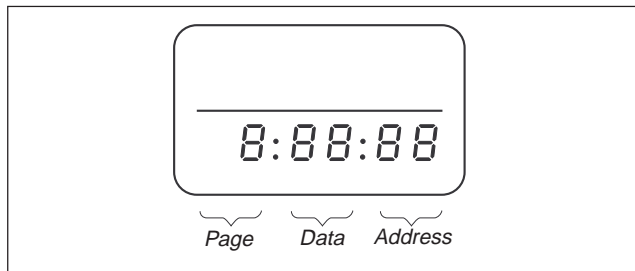


Fig. 5-4-1.

- 3) Operate the adjustment remote commander as follows.
 - Changing the page
The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH- button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d e F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

- Changing the address
The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
 - Changing the data (Data setting)
The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
 - Writing the adjustment data
The PAUSE button must be pressed to write the adjustment data (C, D, E, F page) in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed.)
- 4) After completing all adjustments, turn off the main power supply (8.4 V) once.

2. Precautions Upon Using

the Adjustment Remote Commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table ②																
Lower digit of hexadecimal Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (H)	B (h)	C (c)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	77	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (H)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (h)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis () shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (h d);
Because the upper digit of the adjustment number is B (h), and the lower digit is D (d), the meeting point “189” of ① and ② in the above table is the corresponding decimal number.

Table. 5-4-1.

4-3. SERVICE MODE

Additional note on adjustment

Note: After the completion of the all adjustments, cancel the service mode by either of the following ways.

- 1) After data on page: D and F is restored, unplug the main power supply and remove the coin lithium battery. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
- 2) After data on page: D and F is restored, select page: 0, address: 01, and return the data to 00. And when data on page:2 and 3 are changed, return data to the original condition.

1. Setting the Test Mode

Page F	Address 2C
--------	------------

Data	Function
00	Normal
01	Test mode Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page D	Address 10
--------	------------

Data	Function
00	Normal
01	Forced camera power ON
02	Forced VTR power ON
03	Forced camera + VTR power ON

- Before setting the data , select page: 0, address: 01, and set data: 01.
- For page D and F, the data set will be recorded in the non-volatile memory by pressing the PAUSE button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off (8.4Vdc).
- After completing adjustments/repairs, be sure to return the data of this address to 00, and press the PAUSE button of the adjustment remote commander. And select page: 0, address: 01, and set data: 00.

2. Emergence Memory Address

2-1. C Page. Emergence Memory Address

Page C	Address 38 to 43
--------	------------------

Address	Contents
38	EMG code when first error occurs
3A	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
3B	Lower: MSW code to be moved when first error occurs
3C	EMG code when second error occurs
3E	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
3F	Lower: MSW code to be moved when second error occurs
40	EMG code when last error occurs
42	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
43	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data "00" is written in the above addresses (38 to 43). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (38 to 3B). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (3C to 3F).

Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (40 to 43).

Note : After completing adjustments, be sure to initialize the data of addresses 38 to 43 to "00".

Initializing method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: C, address: 38, set data: 00, and press the PAUSE button.
- 3) Select address: 39 to 43 and set data "00" into them in the same way as address: 38.
- 4) Select page: 0, address: 01, and set data: 00.

2-2. F Page Emergence Memory Address

Note 1: Emergence of PB mode only.

Page F	Address 10 to 1B
--------	------------------

Address	Contents
10	EMG code when first error occurs
12	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
13	Lower: MSW code to be moved when first error occurs
14	EMG code when second error occurs
16	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
17	Lower: MSW code to be moved when second error occurs
18	EMG code when last error occurs
1A	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
1B	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data "00" is written in the above addresses (10 to 1B). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (10 to 13). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (14 to 17).

Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (18 to 1B).

Note 2: After completing adjustments, be sure to initialize the data of addresses 10 to 1B to "00".

Initializing method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 10, set data: 00, and press the PAUSE button.
- 3) Select address: 11 to 1B and set data "00" into them in the same way as in address: 10.
- 4) Select page: 0, address: 01, and set data: 00.

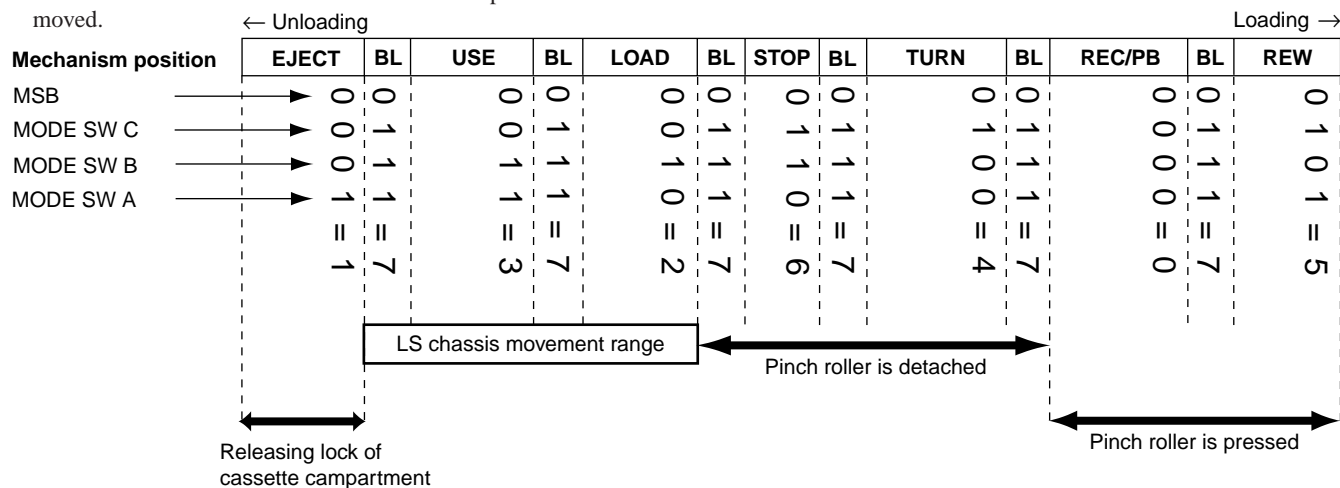
2-3. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in C page, addresses 38, 3C and 40 (or F page, addresses 10, 14 and 18). The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error
10	Loading motor emergency during loading
11	Loading motor emergency during unloading
22	T reel emergency during normal rotation
23	S reel emergency during normal rotation
24	T reel emergency (Short circuit between S reel terminal and T reel terminal)
30	FG emergency at the start up of the capstan
40	FG emergency at the start up of the drum
42	FG emergency during normal rotation of the drum

2-4. MSW Code

- The lower parts of the data of C page, addresses 3A, 3E and 42 (or F page, addresses 12, 16 and 1A) represent the MSW codes (mode switch mechanism position) when errors occurs.
- The upper parts of the data of C page, addresses 3A, 3E and 42 (or F page, addresses 12, 16 and 1A) represent, when the mechanism position is to be moved, the MSW codes at the start movement (when moving the loading motor).
- The lower parts of the data of C page, addresses 3B, 3F and 43 (or F page, addresses 13, 17 and 1B) represent the MSW codes of the desired movement when the mechanism position is to be moved.

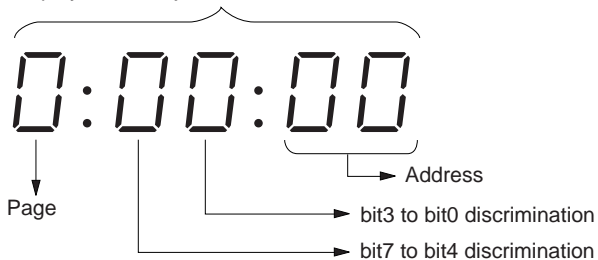


Mechanism Position	MSW Code	Contents
EJECT	1	Position at which the cassette compartment lock is released. The mechanism will not move any further in the unloading direction.
BL	7	BLANC code. Between two codes. The mechanism will not be stopped by this code while it is operating.
USE	3	EJECT completion position. When the cassette is ejected, the mechanism will stop at this position.
LOAD	2	Code during loading/unloading. Code that is used while the LS chassis is moving.
STOP	6	Normal stop position. The pinch roller separates, the tension regulator returns, and the brakes of both reels turn on.
TURN	4	Position at which is used when the pendulum gear swings from S to T or from T to S.
REC/PB	0	PB, REC, CUE, REV, PAUSE, FF positions. The pinch roller is pressed and tension regulator is on.
REW	5	REW position. REW are carried at this position. The mechanism will not move any further in the loading direction.

3. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Use the table below to discriminate if the bit value is “1” or “0”.

Display on the adjustment remote commander



(Example) If the remote commander display is “8E”, bit value from bit 7 to bit 4 can be discriminated from the column ①, and those from bit 3 to bit 0 from column ②.

Display on the adjustment remote commander	Bit values			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
① 8	1	0	0	0
9	1	0	0	1
A (H)	1	0	1	0
B (h)	1	0	1	1
C (L)	1	1	0	0
D (d)	1	1	0	1
② E (E)	1	1	1	0
F (F)	1	1	1	1

4. Input/output check

Page 2	Address 49
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
0			
1			
2			
3			
4	MIC jack	MIC jack is used	
5	AUDIO(R) jack	VIDEO(R) jack is used	
6	VIDEO jack	VIDEO jack is used	
7	S VIDEO jack		S VIDEO jack is used

Using method:

- 1) Select page: 2, address: 49.
- 2) By discriminating the bit value of display data, the state of the jack can be discriminated.

5. LED, LCD (display window) check

Page 2	Address 05	Bit5
--------	------------	------

Using method:

- 1) Select page: 2, address: 05, and set the bit value of Bit5 to “1”.
- 2) Check that all LED are lit and all segments of LCD (display window) are lit.
- 3) Select page: 2, address: 05, and set the bit value of Bit5 to “0”.

6. Record of Use check

Page 2	Address A2 to AA
--------	------------------

Bit	Function		Remarks
A2	Drum rotation	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)
A3	counted time	Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
A4	(BCD code)	Minute	
A5	User initial power	Year	After setting the clock, set the date of power on next
A6	on date	Month	
A7	(BCD code)	Day	
A8	Final condensation	Year	
A9	occurrence date	Month	
AA	(BCD code)	Day	

Using method:

- The record of use data is displayed at page: 2, addresses: A2 to AA.

Note: This data will be erased when the coin lithium battery (CF-62/63/65 board BH001) is removed (reset).

Note:

CF-62 board	2.5 LCD model
CF-63 board	3/3.5 LCD model
CF-65 board	TR model

2.5 LCD model: DCR-TRV103/TRV110/TRV110E/TRV110P

3/3.5 LCD model: DCR-TRV203/TRV210/TRV210E/TRV310/
TRV310E/TRV310P/TRV315

TR model: DCR-TR7000/TR7000E/TR7100E

7. Switch check (1)

Page 2	Address 43
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
0	VTR MODE SW (PS-9500 block)	OFF	ON
1	CAM MODE SW (PS-9500 block)	OFF	ON
2	START/STOP SW (SS-8500 block S002)	OFF	ON
3	EJECT SW (SS-8500 block S003)	OFF	ON
4	CC DOWN SW (Mechanism chassis)	OFF (UP)	ON (DOWN)
5	PHOTO FREEZE SW (FP-49 flexible)	OFF	ON
6			
7			

Using method:

- Select page: 2, address: 43.
- By discriminating the bit value of display data, the state of the switches can be discriminated.

8. Switch check (2)

Page 2	Address 60 to 66
--------	------------------

Using method:

- 1) Select page: 2, address: 60 to 66.
- 2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 to 0C	0D to 24	25 to 3F	40 to 5D	5E to 81	82 to AA	AB to D7	D8 to FF
60 (KEY AD0) (IC801 ⑨③)	LASER LINK (FK-8500 block) (S008)	STOP (FK-8500 block) (S001)	FF (FK-8500 block) (S003)	REC (FK-8500 block) (S005, 007)	EDIT SEARCH(+) (FK-8500 block) (S009)	EDIT SEARCH(-) (FK-8500 block) (S010)		No key input
61 (KEY AD1) (IC801 ⑨④)	PHOTO REC (FP-49 flexible)	PAUSE (FK-8500 block) (S002)	REW (FK-8500 block) (S004)	PLAY (FK-8500 block) (S006)				No key input
62 (KEY AD2) (IC801 ⑨⑤)	DIGITAL EFFECT (CF-62/63/65 board) (S001)	PICTURE EFFECT (CF-62/63/65 board) (S006)	MENU (CF-62/63/65 board) (S010)	EXECUTE (CF-62/63/65 board) (S015)		5sec REC (CF-62/63/65 board) (S024)	PUSHING REC (CF-62/63/65 board) (S024)	NORMAL REC (CF-62/63/65 board) (S024)
64 (KEY AD4) (IC801 ⑨⑦)			EXPOSURE (CF-62/63/65 board) (S012)	BACK LIGHT (CF-62/63/65 board) (S017)	FADER (CF-62/63/65 board) (S027)	FOCUS INFINITY (PS-9500 block)	FOCUS AUTO (PS-9500 block)	FOCUS MANUAL (PS-9500 block)
65 (KEY AD5) (IC801 ⑨⑧)	DATA CODE (CF-62/63/65 board) (S003)		END SEARCH (CF-62/63 board) (S013)		DISPLAY (CF-62/63 board) (S022)		+SLOW SHUTTER (FP-62 flexible)	No key input
66 (KEY AD6) (IC801 ⑨⑨)	PROGRAM AE (CF-62/63/65 board) (S004)	BRIGHT(+) (PD-105 board) (S5801) (PD-106 board) (S5900)	BRIGHT(-) (PD-105 board) (S5802) (PD-106 board) (S5901)	VOLUME(+) (PD-105 board) (S5803) (PD-106 board) (S5902)	VOLUME(-) (PD-105 board) (S5804) (PD-106 board) (S5903)	PANEL REVERSE (FP-642 flexible)	PANEL CLOSE (FP-642 flexible)	PANEL NORMAL (FP-642 flexible)

Note:	CF-62 board	PD-105 board	2.5 LCD model
	CF-63 board	PD-106 board	3/3.5 LCD model
	CF-65 board	—	TR model

2.5 LCD model: DCR-TRV103/TRV110/TRV110E/TRV110P
 3/3.5 LCD model: DCR-TRV203/TRV210/TRV210E/TRV310/
 TRV310E/TRV310P/TRV315
 TR model: DCR-TR7000/TR7000E/TR7100E

9. AUDIO(L) jack check

Page 2	Address 42
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
2	AUDIO(L) jack	AUDIO(L) jack is used	

Using method:

- 1) Select page: 2, address: 45.
- 2) By discriminating the bit value of display data, the state of the AUDIO(L) jack can be discriminated.

10. Headphone jack check

Page 3	Address 56
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
2	Headphone jack	Headphone jack is used	

Using method:

- 1) Select page: 3, address: 56.
- 2) By discriminating the bit value of display data, the state of the headphone jack can be discriminated.

DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/ TRV210E/TRV310/TRV310E/TRV310P/TRV315 DCR-TR7000/TR7000E/TR7100E

SECTION 6 REPAIR PARTS LIST

6-1. EXPLODED VIEWS

NOTE:

- XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

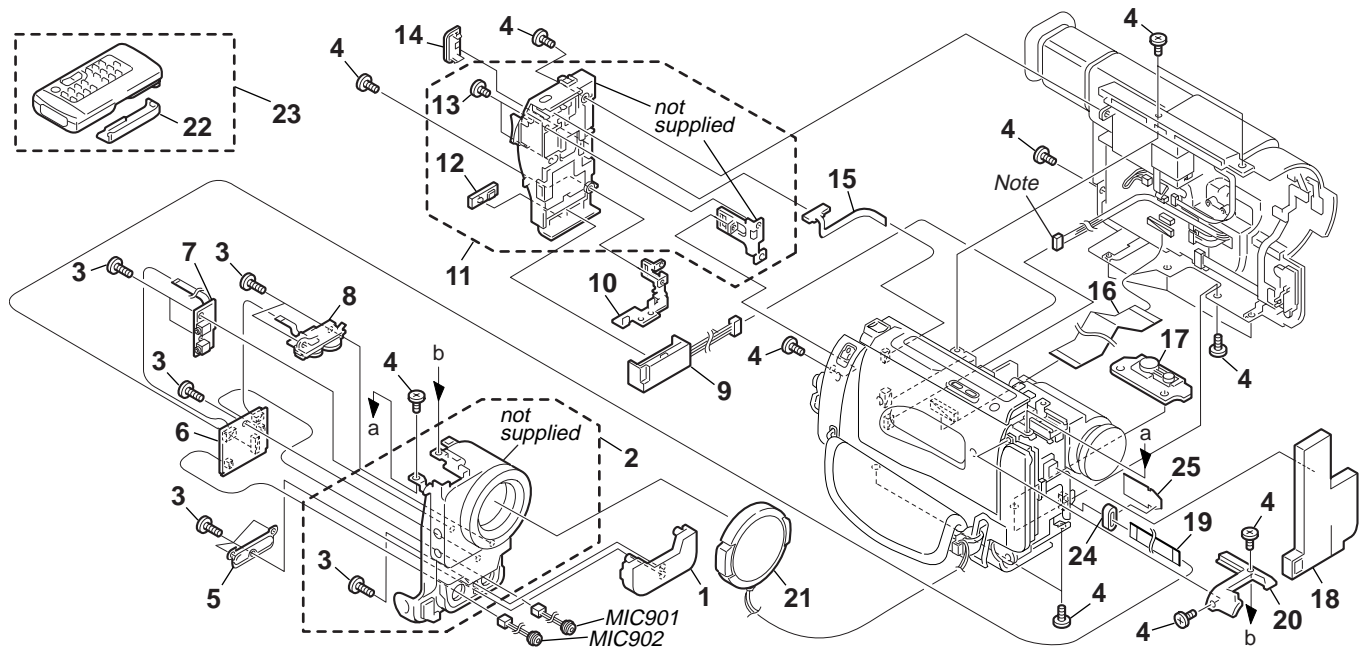
Abbreviation	
CND	: Canadian model
EE	: East European model
NE	: North European model
RU	: Russian model
HK	: Hong Kong model
AUS	: Australian model
CN	: Chinese model
BR	: Brazilian model
JE	: Tourist model
TW	: Taiwan model

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

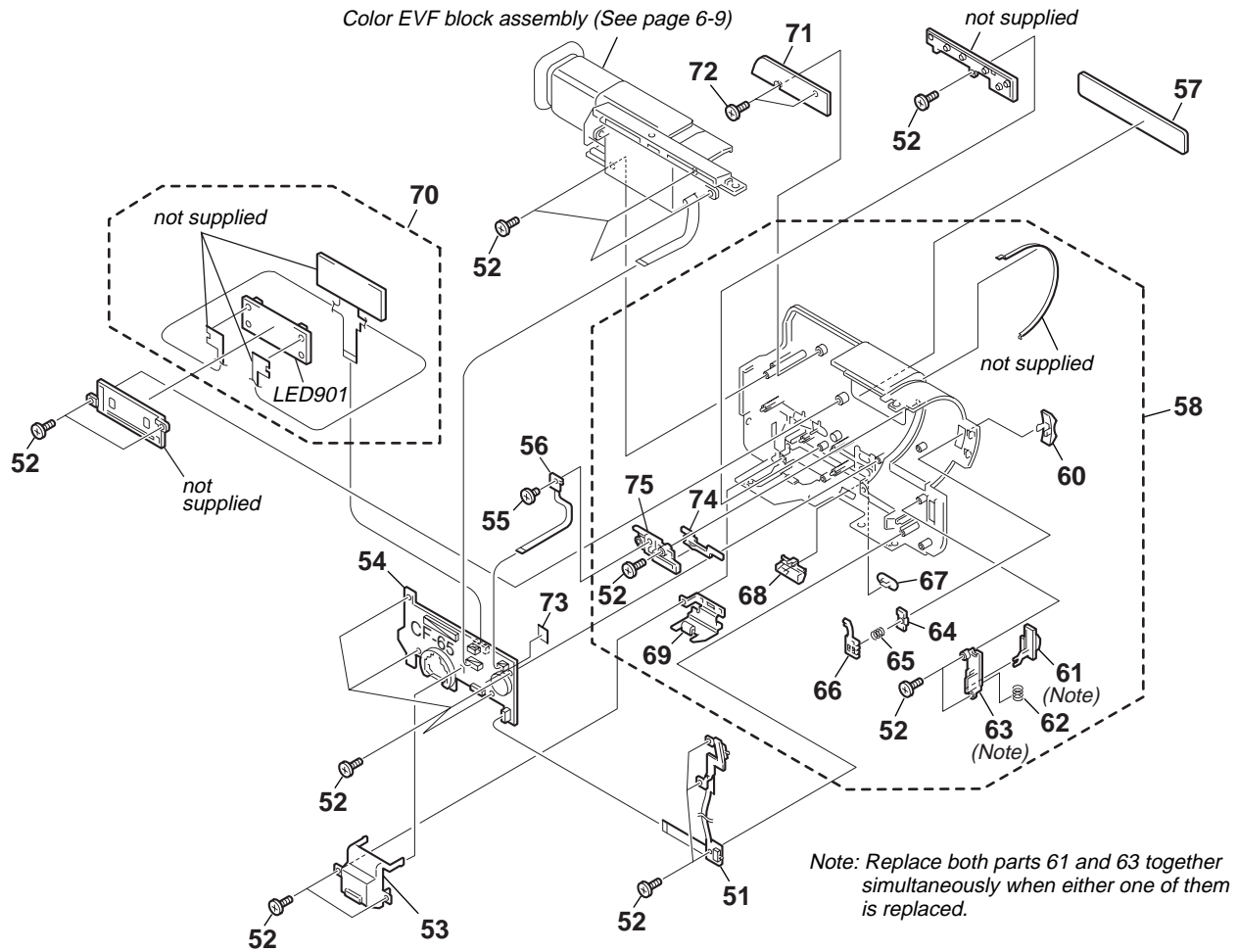
6-1-1. FRONT PANEL (N) AND BATTERY PANEL (P) BLOCK ASSEMBLY

Note: the TR models do not have the harness (DP-74 or DP-75) shown by Note.



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	X-3949-374-1	GRILLE (N) ASSY, MICROPHONE (TRV103/TRV110/TRV110E/TRV110P/TR7000/TR7000E/TR7100E)		8	1-418-273-11	SWITCH BLOCK, CONTROL (MF-9500)	
1	X-3949-375-1	GRILLE (N3) ASSY, MICROPHONE (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)		9	1-694-384-11	TERMINAL BOARD, BATTERY	
2	X-3949-367-1	PANEL (N) ASSY, FRONT (TRV103/TRV110/TRV110E:E, HK, AUS, CN, JE/TRV110P/TR7000)		10	3-053-723-01	SHEET METAL (LOWER), STRAP	
2	X-3949-368-1	PANEL (N) ASSY, FRONT (TRV203/TRV210/TRV210E:CN/TRV310:US, HK, E, JE/ TRV310E:E, HK, AUS, CN, JE/TRV310P/TRV315)		11	X-3949-390-1	PANEL ASSY (P), BATTERY (EXCEPT:TRV110:BR)	
2	X-3949-369-1	PANEL (N) ASSY, FRONT (TRV110E:AEP, UK, EE, NE, RU/TR7000E/TR7100E)		11	X-3949-512-1	PANEL ASSY (P), BATTERY (TRV110:BR)	
2	X-3949-370-1	PANEL (N) ASSY, FRONT (TRV210E:AEP, UK/TRV310E:AEP, UK)		12	3-987-656-01	LID, JACK	
2	X-3949-417-1	PANEL (N) ASSY, FRONT (TRV310:TW)		13	3-968-729-61	SCREW (M2X3), LOCK ACE, P2	
3	3-948-339-61	TAPPING		14	3-975-752-01	LID (BT), CPC	
4	3-968-729-01	SCREW (M2), LOCK ACE, P2		15	1-672-663-21	FP-49 FLEXIBLE BOARD	
5	X-3949-373-1	COVER (N) ASSY, MN		16	1-783-240-11	CABLE, FLEXIBLE FLAT (FFC-236)	
6	A-7073-869-A	MA-354 (I) BOARD, COMPLETE (TRV103/TRV110/TRV110E/TRV110P)		17	3-987-717-01	SCREW	
6	A-7073-920-A	MA-357 (I) BOARD, COMPLETE (TR7000/TR7000E/TR7100E)		18	3-053-899-01	CUSHION (N)	
6	A-7073-925-A	MA-355 (I) BOARD, COMPLETE (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)		19	1-673-119-11	FP-77 FLEXIBLE BOARD	
7	1-673-118-21	FP-76 FLEXIBLE BOARD		20	3-053-604-11	CABINET (S), SHOE	
				21	X-3949-376-1	CAP (N) ASSY, LENS	
				22	3-742-854-01	LID, BATTERY CASE (for RMT-814)	
				23	1-475-141-61	COMMANDER, REMOTE (RMT-814)	
				24	1-469-431-11	BEAD, FERRITE	
				* 25	3-055-380-01	SHEET, FERRITE FIXED	
				MIC901	1-542-312-11	MICROPHONE (L)	
				MIC902	1-542-312-11	MICROPHONE (R)	

6-1-2. CABINET (R) BLOCK ASSEMBLY (TR MODEL) (TR7000/TR7000E/TR7100E)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	1-418-274-11	SWITCH BLOCK, CONTROL (PS-9500)		63	3-056-470-01	RETAINER (93), MF	
52	3-948-339-61	TAPPING		64	3-054-029-01	BUTTON (952), POWER LOCK	
53	3-053-717-01	RETAINER (92), LITHIUM BATTERY		65	3-568-315-01	SPRING, COMPRESSION	
54	A-7073-921-A	CF-65 (C) BOARD, COMPLETE		66	3-054-030-01	HOLDER (952), P KNOB	
55	3-713-791-01	SCREW (M1.7X4), TAPPING, P2		67	3-054-284-01	KNOB (950), MODE SELECTION	
56	1-672-668-21	FP-62 FLEXIBLE BOARD		68	3-054-285-01	RETAINER (950), MODE SELECTION	
57	3-054-289-01	WINDOW (950), LCD (TR7000)		69	3-054-283-01	LID (950), LITHIUM BATTERY	
57	3-054-289-11	WINDOW (950), LCD (TR7000E)		70	A-7094-411-A	INDICATION (LCD) BLOCK ASSY	
57	3-054-289-21	WINDOW (950), LCD (TR7100E)		* 71	3-054-612-01	BLIND (95), CVF	
58	X-3949-452-1	CABINET (R) (950) ASSY (TR7000)		72	3-948-339-01	SCREW, TAPPING	
58	X-3949-456-1	CABINET (R) (950) ASSY (TR7000E/TR7100E)		73	3-055-660-01	SHEET (95), MUFFLE	
60	3-054-028-01	KNOB (952), POWER		74	3-054-290-01	KNOB (950), NS	
61	3-056-469-21	KNOB (93), MF		75	3-054-291-01	RETAINER (950), NS	
62	3-965-034-01	SPRING, COMPRESSION		△ LED901	1-517-866-11	LIGHT, BACK	

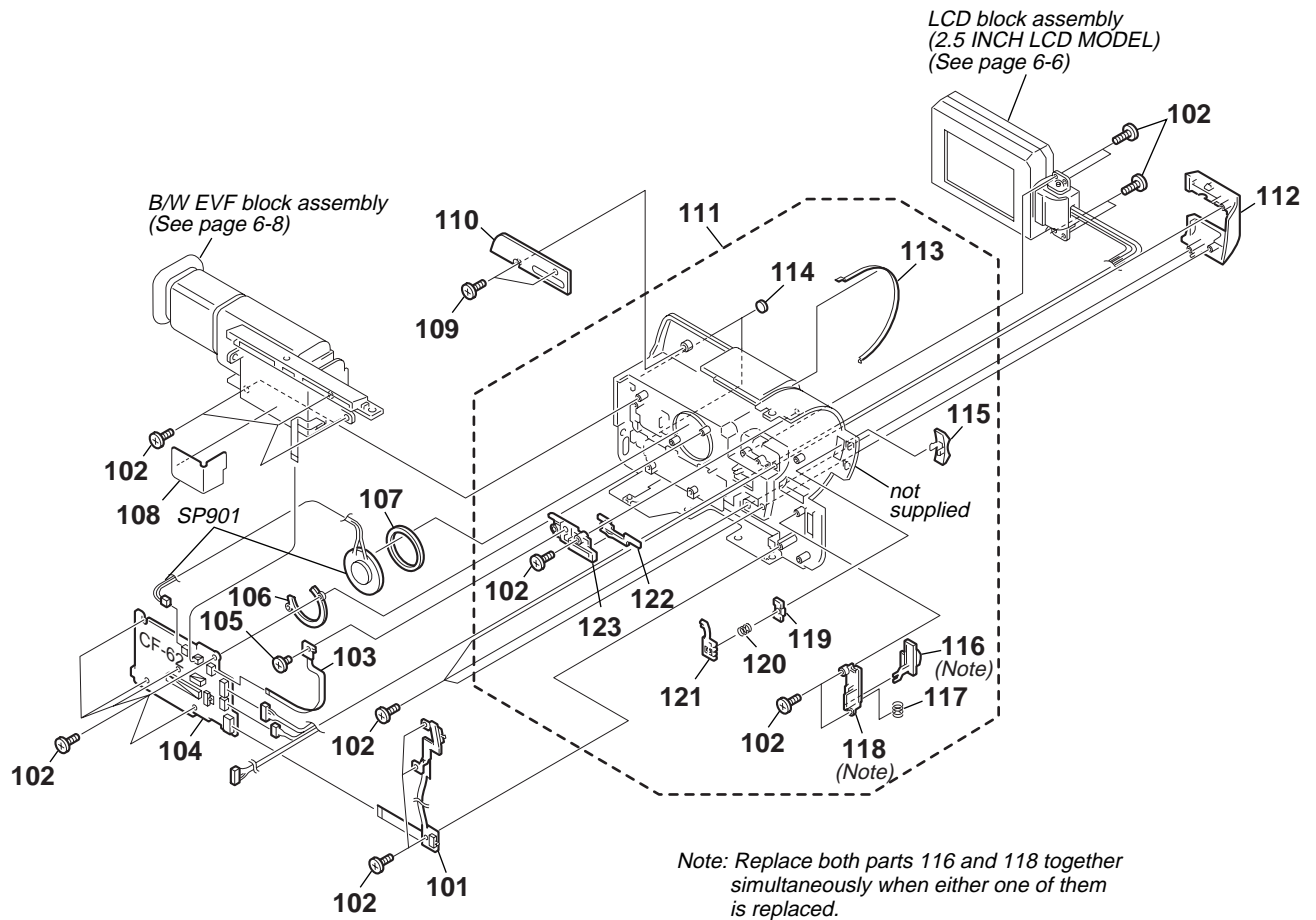
Note :

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Note :

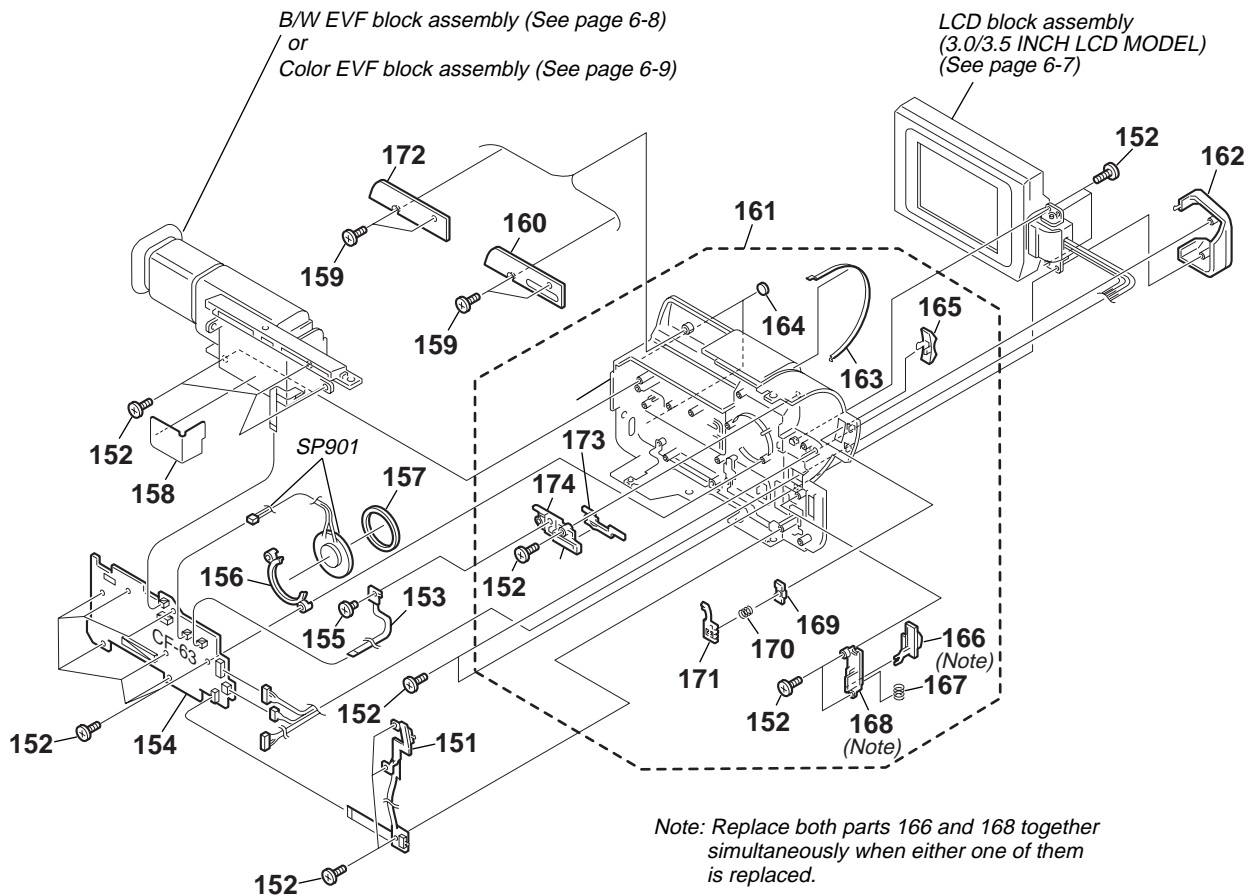
Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-3. CABINET (R) BLOCK ASSEMBLY (2.5 INCH LCD MODEL) (TRV103/TRV110/TRV110E/TRV110P)



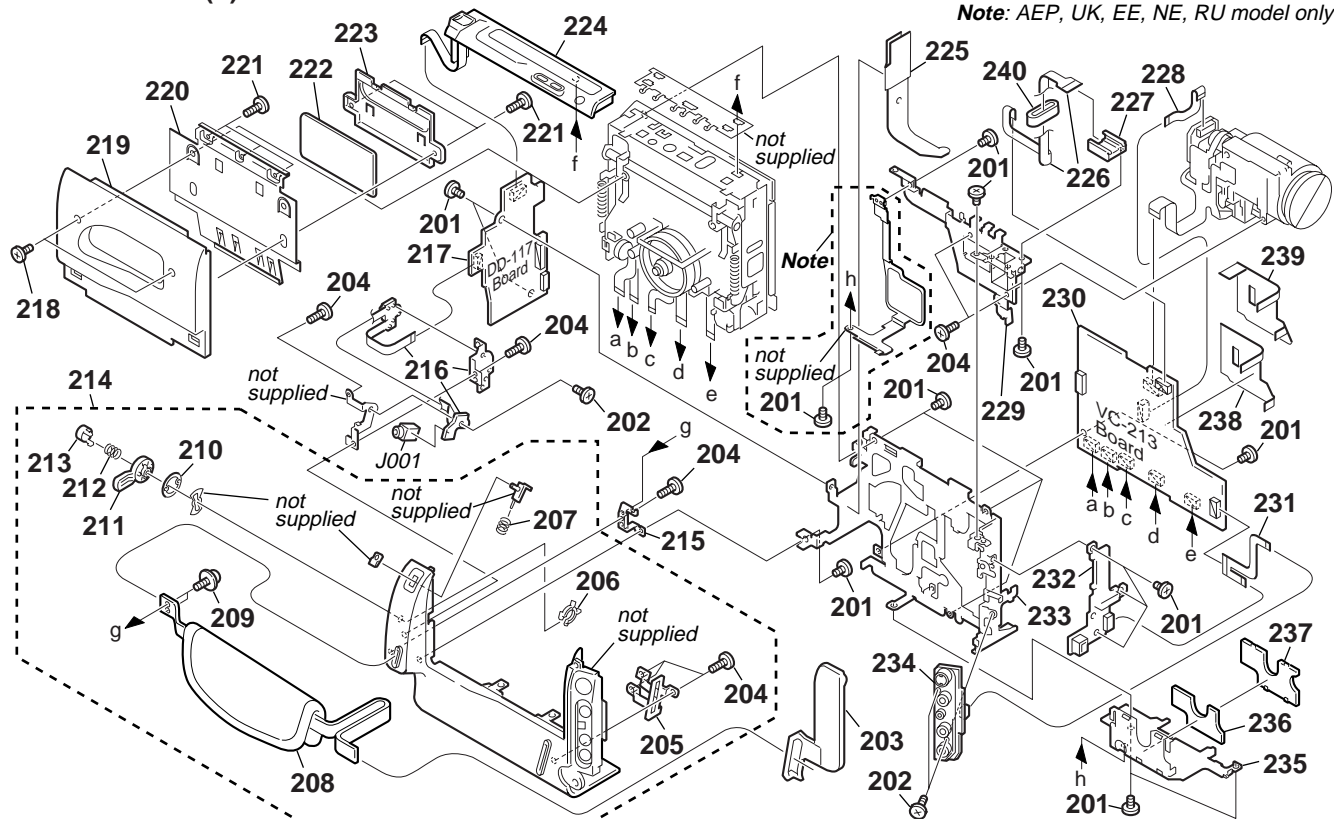
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	1-418-274-11	SWITCH BLOCK, CONTROL (PS-9500)		112	3-054-038-01	COVER (R) (952), HINGE	
102	3-948-339-61	TAPPING		* 113	3-054-031-01	RING (952), ORNAMENTAL	
103	1-672-668-21	FP-62 FLEXIBLE BOARD		114	3-959-978-02	CUSHION, PANEL	
104	A-7073-870-A	CF-62 (B) BOARD, COMPLETE		115	3-054-028-01	KNOB (952), POWER	
105	3-713-791-01	SCREW (M1.7X4), TAPPING, P2		116	3-056-469-21	KNOB (93), MF	
* 106	3-053-783-01	RETAINER (93), SPEAKER		117	3-965-034-01	SPRING, COMPRESSION	
107	3-965-367-01	SPACER, SP		118	3-056-470-01	RETAINER (93), MF	
108	3-053-683-01	GUIDE, HARNESS		119	3-054-029-01	BUTTON (952), POWER LOCK	
109	3-948-339-01	SCREW, TAPPING		120	3-568-315-01	SPRING, COMPRESSION	
110	3-054-069-01	GUIDE (B (95)), TILT		121	3-054-030-01	HOLDER (952), P KNOB	
111	X-3949-415-1	CABINET (R) ASSY (952) (TRV103/TRV110/TRV110E:E, HK, AUS, CN, JE/TRV110P)		122	3-054-025-01	KNOB (952), NS	
111	X-3949-436-1	CABINET (R) ASSY (952) (TRV110E:AEP, UK, EE, NE, RU)		123	3-054-026-01	RETAINER (952), NS	
				SP901	1-505-291-21	SPEAKER (2.8CM)	

6-1-4. CABINET (R) BLOCK ASSEMBLY (3.0/3.5 INCH LCD MODEL) **(TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)**



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
151	1-418-274-11	SWITCH BLOCK, CONTROL (PS-9500)		162	3-054-277-01	COVER (R) (955), HINGE (TRV203/TRV210/TRV210E/TRV310:US,HK,E,JE/ TRV310E/TRV310P/TRV315)	
152	3-948-339-61	TAPPING		162	3-054-277-11	COVER (R) (955), HINGE (TRV310:TW)	
153	1-672-668-21	FP-62 FLEXIBLE BOARD		* 163	3-054-031-01	RING (952), ORNAMENTAL	
154	A-7073-926-A	CF-63 (C) BOARD, COMPLETE (TRV315)		164	3-959-978-02	CUSHION, PANEL	
154	A-7073-955-A	CF-63 (B) BOARD, COMPLETE (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P)		165	3-054-028-01	KNOB (952), POWER	
155	3-713-791-01	SCREW (M1.7X4), TAPPING, P2		166	3-056-469-11	KNOB (93), MF	
* 156	3-053-783-01	RETAINER (93), SPEAKER		167	3-965-034-01	SPRING, COMPRESSION	
157	3-965-367-01	SPACER, SP		168	3-056-470-01	RETAINER (93), MF	
158	3-053-683-01	GUIDE, HARNESS		169	3-054-029-01	BUTTON (952), POWER LOCK	
159	3-948-339-01	SCREW, TAPPING		170	3-568-315-01	SPRING, COMPRESSION	
160	3-054-069-01	GUIDE (B (95)), TILT (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P)		171	3-054-030-01	HOLDER (952), P KNOB	
161	X-3949-449-1	CABINET (R) (955) ASSY (TRV203/TRV210/TRV210E:CN/TRV310:US,HK,E,JE/ TRV310E:E,HK,AUS,CN,JE/TRV310P/TRV315)		* 172	3-054-612-01	BLIND (95), CVF (TRV315)	
161	X-3949-475-1	CABINET (R) (955) ASSY (TRV210E:AEP:UK/TRV310E:AEP:UK)		173	3-054-267-01	KNOB (955), NS	
161	X-3949-477-1	CABINET (R) (955) ASSY (TRV310:TW)		174	3-054-268-01	RETAINER (952), NS	
				SP901	1-504-753-41	SPEAKER (2.8CM)	

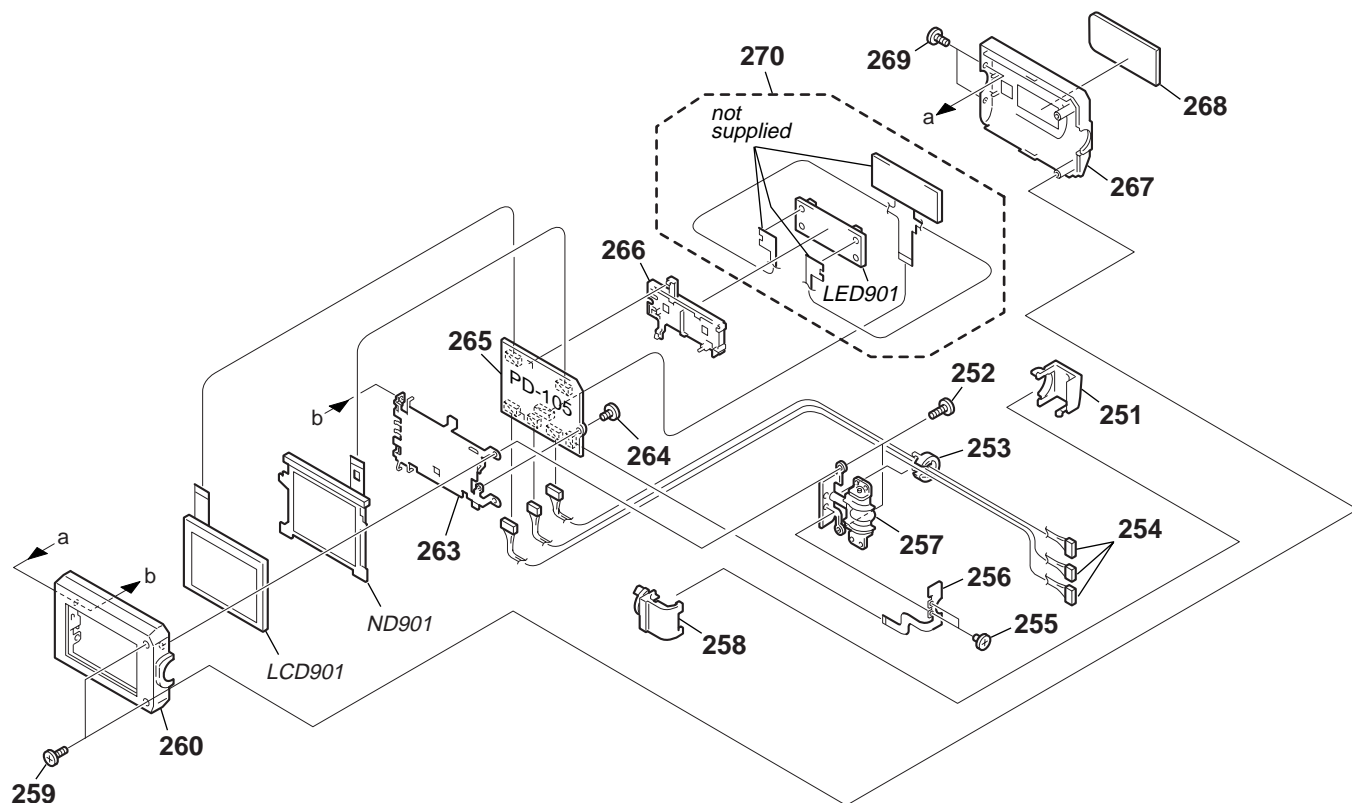
6-1-5. CABINET (L) BLOCK AND MAIN BOARDS ASSEMBLY



Note: AEP, UK, EE, NE, RU model only

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
201	3-713-786-21	SCREW (M2X3)		* 225	3-053-745-01	PROTECTOR, LS FLEXIBLE	
202	3-968-729-01	SCREW (M2), LOCK ACE, P2		226	1-672-672-11	FP-45 FLEXIBLE BOARD (TRV110:BR)	
* 203	3-975-522-11	COVER, JACK		226	1-672-672-21	FP-45 FLEXIBLE BOARD (EXCEPT:TRV110:BR)	
204	3-948-339-61	TAPPING		227	1-774-867-31	CONNECTOR,EXTERNAL (HOT SHOE) 8P	
205	3-975-966-01	SHEET METAL (2), SS		228	1-672-665-11	FP-54 FLEXIBLE BOARD	
206	3-949-192-01	HOLDER, STAND-BY KNOB		229	3-053-741-11	FRAME (S), LENS	
207	3-302-492-00	SPRING, COMPRESSION		230	A-7094-280-A	VC-213 (N) BOARD, COMPLETE (TR7000)	
208	3-052-815-01	BELT (ES), GRIP		230	A-7094-281-A	VC-213 (QP) BOARD, COMPLETE (TR7000E/TR7100E)	
209	3-679-362-11	SCREW		230	A-7094-282-A	VC-213 (VN) BOARD, COMPLETE (TRV103/TRV110/TRV110P/TRV203/TRV210/TRV310/TRV310P/TRV315)	
210	3-970-854-01	SPRING, STAND-BY		230	A-7094-283-A	VC-213 (VQP) BOARD, COMPLETE (TRV110E/TRV210E/TRV310E)	
211	3-969-081-01	KNOB, STAND-BY		231	1-673-120-11	FP-78 FLEXIBLE BOARD	
212	3-979-642-01	SPRING, COMPRESSION		232	A-7073-867-A	SE-86 BOARD, COMPLETE (TRV103/TRV110/TRV110E/TRV110P)	
213	3-960-566-01	BUTTON, S/S		232	A-7073-918-A	SE-89 BOARD, COMPLETE (TR7000/TR7000E/TR7100E)	
214	X-3949-397-1	CABINET (L) ASSY (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		232	A-7073-923-A	SE-87 BOARD, COMPLETE (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
214	X-3949-398-1	CABINET (L) ASSY (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		233	3-053-743-01	FRAME (A), MD	
* 215	3-975-532-01	HOLDER, EL		234	A-7073-868-A	PJ-95 BOARD, COMPLETE (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)	
216	1-475-619-11	SWITCH BLOCK, CONTROL (SS-8500)		234	A-7073-919-A	PJ-98 BOARD, COMPLETE (TR7000)	
217	A-7073-866-A	DD-117 (V) BOARD, COMPLETE (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)		234	A-7073-924-A	PJ-96 BOARD, COMPLETE (TRV203/TRV210/TRV210E:CN/TRV310/TRV310E:E,HK,AUS,CN,JE/TRV310P/TRV315)	
217	A-7073-917-A	DD-117 (C) BOARD, COMPLETE (TR7000/TR7000E/TR7100E)		234	A-7073-941-A	PJ-95 (IM) BOARD, COMPLETE (TRV110E:AEP,UK,EE,NE,RU)	
217	A-7073-922-A	DD-117 (VC) BOARD, COMPLETE (TRV315)		234	A-7073-954-A	PJ-96 (IM) BOARD, COMPLETE (TRV210E:AEP,UK/TRV310E:AEP,UK)	
218	3-968-729-81	SCREW (M2), LOCK ACE, P2		234	A-7073-976-A	PJ-98 (IM) BOARD, COMPLETE (TR7000E/TR7100E)	
219	X-3949-392-1	LID ASSY, CASSETTE (TRV203/TRV210/TRV310:US/TRV315/TR7000)		235	3-987-675-01	FRAME (B), MD	
219	X-3949-393-1	LID ASSY, CASSETTE (EXCEPT:TRV203/TRV210/TRV310:US/TRV315/TR7000)		236	1-469-363-11	FILTER, EMI (MD) (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)	
220	3-987-678-11	PLATE, CASSETTE SHILED (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)		237	3-987-676-01	COVER (MD), FERRITE (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)	
221	3-713-791-01	SCREW (M1.7X4), TAPPING, P2 (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)		* 238	3-055-691-01	PROTECTOR, L- FLEXIBLE (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
222	1-469-364-11	FILTER, EMI (CS) (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)		* 239	3-053-725-11	SHEET, IM GUARD (TRV103/TRV110/TRV110E/TRV110P/TR7000/TR7000E/TR7100E)	
223	3-987-677-01	COVER (C), FERRITE (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)		240	1-469-431-11	BEAD, FERRITE	
224	1-475-617-51	SWITCH BLOCK, CONTROL (FK-8500) (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)		J001	1-565-276-31	JACK, ULTRA SMALL 1P (LANC)	
224	1-475-617-71	SWITCH BLOCK, CONTROL (FK-8500) (EXCEPT:TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)					

**6-1-6. LCD BLOCK ASSEMBLY (2.5 INCH LCD MODEL)
(TRV103/TRV110/TRV110E/TRV110P)**



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
251	3-054-039-01	COVER (C) (952), HINGE		266	3-053-702-01	HOLDER (93), LCD	
252	3-948-339-11	SCREW, TAPPING		267	X-3949-544-1	CABINET (C) (952) ASSY, P	
253	3-987-623-01	CLAMP, HARNESS		268	3-054-122-01	WINDOW (952), LCD (TRV110/TRV110P)	
254	1-959-310-11	HARNESS (DP-74)		268	3-054-122-11	WINDOW (952), LCD (TRV103)	
255	4-981-286-01	SCREW (M1.7X2)(IB LOCK)		268	3-054-122-21	WINDOW (952), LCD (TRV110E)	
256	1-668-963-21	FP-642 FLEXIBLE BOARD		269	3-968-729-01	SCREW (M2), LOCK ACE, P2	
257	X-3949-656-1	HINGE ASSY (N)		270	A-7094-411-A	INDICATION (LCD) BLOCK ASSY	
258	3-987-625-01	COVER (M), HINGE		△ LED901	1-517-866-11	LIGHT, BACK	
259	3-948-339-01	SCREW, TAPPING		LCD901	1-803-355-21	MODULE, CRYSTAL INDICATION (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)	
260	X-3949-416-1	CABINET (M (952)) ASSY, P		LCD901	1-803-357-21	MODULE, CRYSTAL INDICATION (TRV110E:AEP,UK,EE,NE,RU)	
263	X-3949-385-1	FRAME (93) ASSY, PANEL		△ ND901	1-517-751-31	TUBE, FLUORESCENT,COLD CATHODE (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)	
264	3-713-786-21	SCREW (M2X3)		△ ND901	1-517-751-41	TUBE, FLUORESCENT,COLD CATHODE (TRV110E:AEP,UK,EE,NE,RU)	
265	A-7073-871-A	PD-105 (SHN) BOARD, COMPLETE (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)					
265	A-7073-942-A	PD-105 (SHP) BOARD, COMPLETE (TRV110E:AEP,UK,EE,NE,RU)					

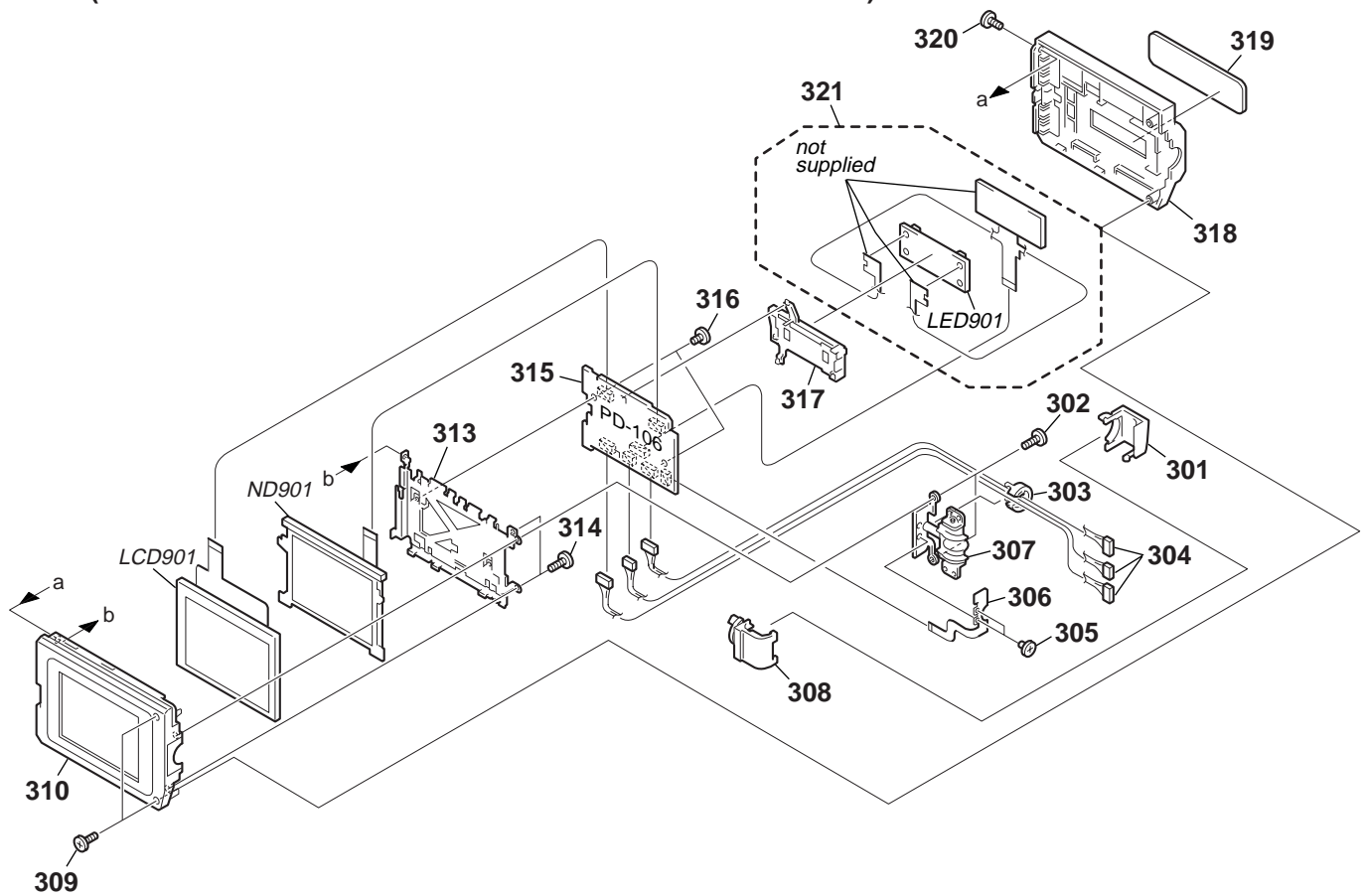
Note :

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Note :

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-7. LCD BLOCK ASSEMBLY (3.0/3.5 INCH LCD MODEL) (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
301	3-054-278-01	COVER (C) (955), HINGE		317	3-054-275-01	HOLDER (94), LCD	
302	3-948-339-11	SCREW, TAPPING		318	X-3949-450-1	CABINET (C) ASSY (955), P (TRV203/TRV210/TRV210E/TRV310:US,HK,E,JE/ TRV310E/TRV310P/TR315)	
303	3-987-623-01	CLAMP, HARNESS		318	X-3949-479-1	CABINET (C) (955) ASSY, P (TRV310:TW)	
304	1-959-311-11	HARNESS (DP-75)		319	3-054-276-01	WINDOW (955), LCD (TRV315)	
305	4-981-286-01	SCREW (M1.7X2)(IB LOCK)		319	3-054-276-11	WINDOW (955), LCD (TRV210)	
306	1-668-963-41	FP-642 FLEXIBLE BOARD		319	3-054-276-21	WINDOW (955), LCD (TRV203)	
307	X-3949-657-1	HINGE ASSY (NH)		319	3-054-276-31	WINDOW (955), LCD (TRV310/TRV310P)	
308	3-987-625-01	COVER (M), HINGE		319	3-054-276-41	WINDOW (955), LCD (TRV310E)	
309	3-948-339-01	SCREW, TAPPING		319	3-054-276-51	WINDOW (955), LCD (TRV210E)	
310	3-054-273-01	CABINET (M) (955), P (TRV310:US,HK,E,JE/TRV310E/TRV310P)		320	3-968-729-01	SCREW (M2), LOCK ACE, P2	
310	3-054-273-11	CABINET (M) (955), P (TRV203/TRV210/TRV210E/TRV315)		321	A-7094-411-A	INDICATION (LCD) BLOCK ASSY	
310	3-054-273-21	CABINET (M) (955), P (TRV310:TW)		△LED901	1-517-866-11	LIGHT, BACK	
313	X-3949-451-1	FRAME (958) ASSY, PANEL		LCD901	1-803-032-21	MODULE, CRYSTAL INDICATION (TRV310/TRV310P)	
314	3-948-339-61	TAPPING		LCD901	1-803-359-21	MODULE, CRYSTAL INDICATION (TRV203/TRV210/TRV210E/TRV315)	
315	A-7073-927-A	PD-106 (SH) BOARD, COMPLETE (TRV203/TRV210/TRV210E/TRV315)		LCD901	1-803-360-21	MODULE, CRYSTAL INDICATION (TRV310:US/TRV310E)	
315	A-7073-957-A	PD-106 (CAN) BOARD, COMPLETE (TRV310/TRV310P)		△ND901	1-517-855-11	TUBE, FLUORESCENT,COLD CATHODE (TRV310/TRV310E/TRV310P)	
315	A-7073-975-A	PD-106 (SHP) BOARD, COMPLETE (TRV310E)		△ND901	1-517-856-11	TUBE, FLUORESCENT,COLD CATHODE (TRV203/TRV210/TRV210E/TRV315)	
316	3-713-786-21	SCREW (M2X3)					

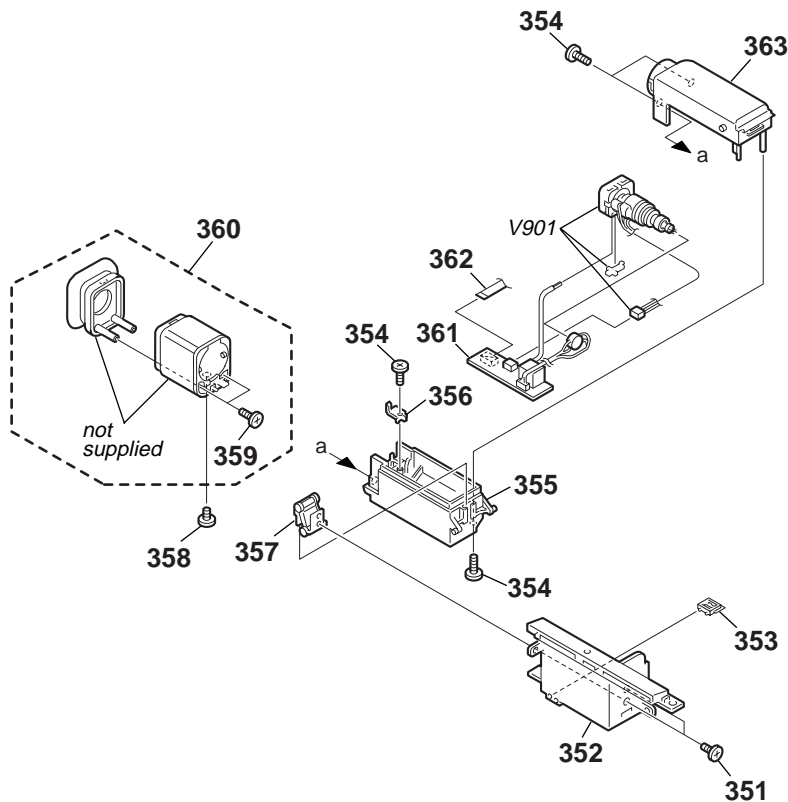
Note :

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Note :

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-8. B/W EVF BLOCK ASSEMBLY
(TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P)

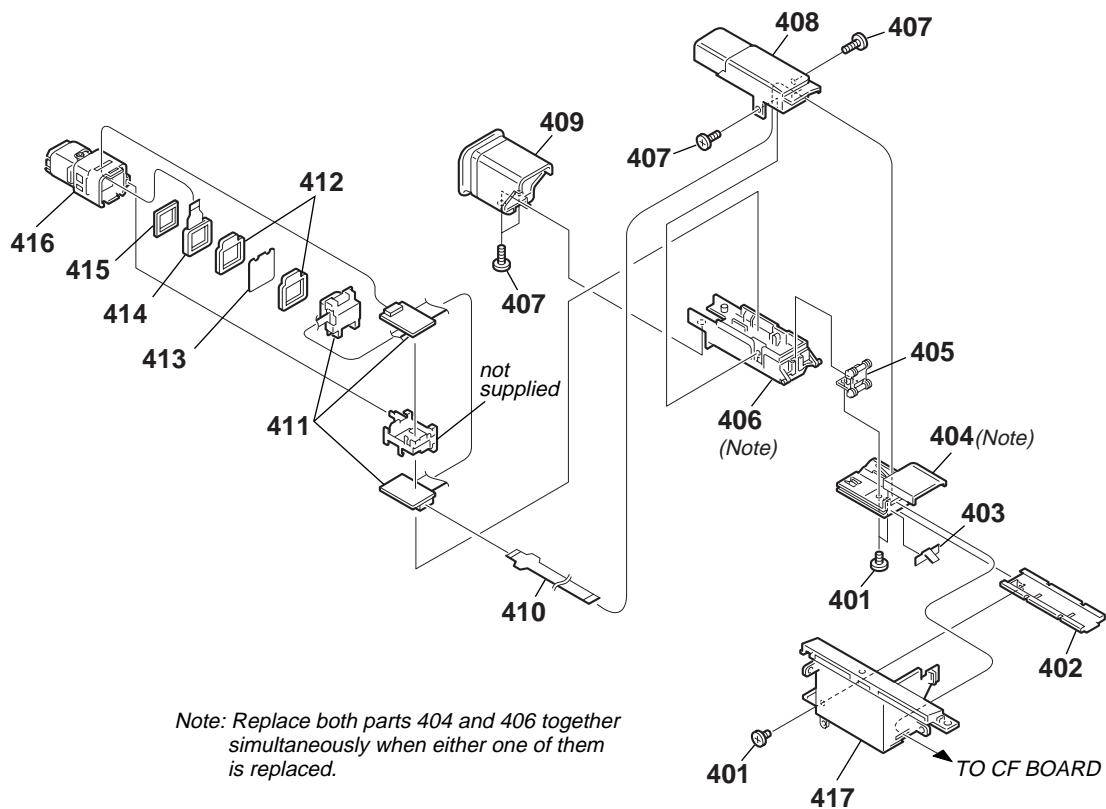


Ref. No.	Part No.	Description	Remarks
351	3-713-786-21	SCREW (M2X3)	
352	3-054-068-01	BASE B (95), VF	
353	3-053-685-01	LOCK (93), TILT	
354	3-948-339-01	SCREW, TAPPING	
355	3-054-067-01	CABINET (LOWER B) (95), EVF	(EXCEPT:TRV310:TW)
356	3-053-681-01	TALLY, EVF	
357	X-3949-327-1	ARM (B) ASSY, CRANK	
358	3-975-898-01	SCREW (T), F LOCK	
359	3-948-339-61	TAPPING	

Ref. No.	Part No.	Description	Remarks
360	X-3949-329-1	FINDER (S) ASSY	
361	A-7073-838-A	VF-129 (N) BOARD, COMPLETE	(TRV103/TRV110/TRV110P/TRV203/TRV210/TRV310/TRV310P)
361	A-7073-855-A	VF-129 (P) BOARD, COMPLETE	(TRV110E/TRV210E/TRV310E)
362	1-790-412-11	CABLE, FLEXIBLE FLAT (FFC-256)	
363	X-3949-412-1	CABINET (UPPER B) (95) ASSY	(EXCEPT:TRV310:TW)
363	X-3949-586-1	CABINET (UPPER B) (959) ASSY	(TRV310:TW)
△ V901	1-452-673-61	CRT ASSY (M01KXX90WB)	

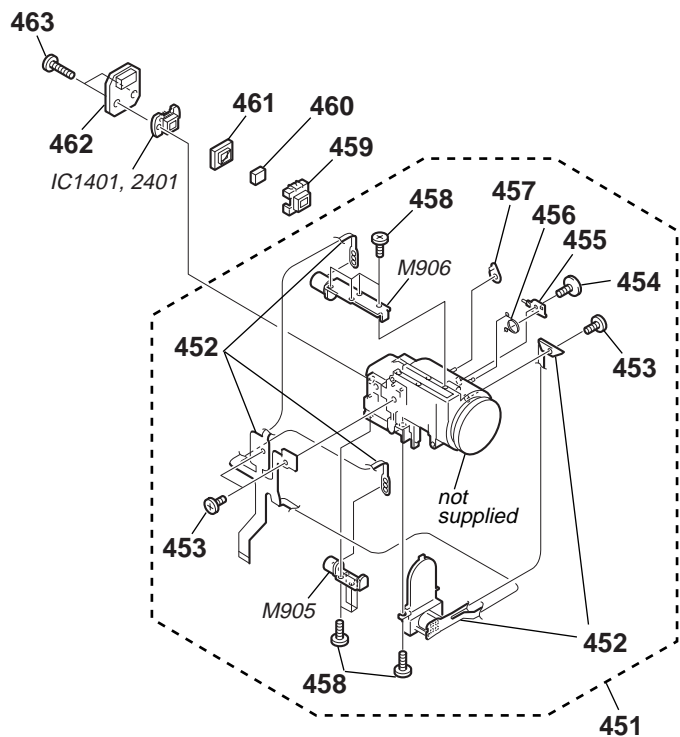
Note : The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Note : Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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6-1-9. COLOR EVF BLOCK ASSEMBLY
(TRV315/TR7000/TR7000E/TR7100E)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
401	3-968-729-81	SCREW (M2), LOCK ACE, P2		410	1-672-662-11	FP-47 FLEXIBLE BOARD	
402	3-053-677-01	BASE (C), SLIDE FIXED		411	A-7073-876-A	VF-126 BOARD, COMPLETE	
403	3-054-141-01	RETAINER, HARNESS		* 412	3-989-416-11	CUSHION (458), LCD	
404	X-3949-414-4	SLIDE BASE C (95) ASSY		* 413	3-988-563-01	ILLUMINATOR (458), BL	
405	X-3949-331-1	ARM (C) ASSY, CRANK		414	8-753-023-89	LCX024AK-J COMPLE	
406	3-054-074-03	CABINET (LOWER C) (95), EVF		* 415	3-960-302-11	CUSHION (1), LCD	
407	3-948-339-01	SCREW, TAPPING		416	X-3949-332-1	LENS ASSY (92), VF	
408	3-054-073-01	CABINET (UPPER C) (95), EVF		417	3-054-075-03	BASE C (95), VF	
409	X-3949-413-1	CABINET (REAR C) (95) ASSY, EVF					

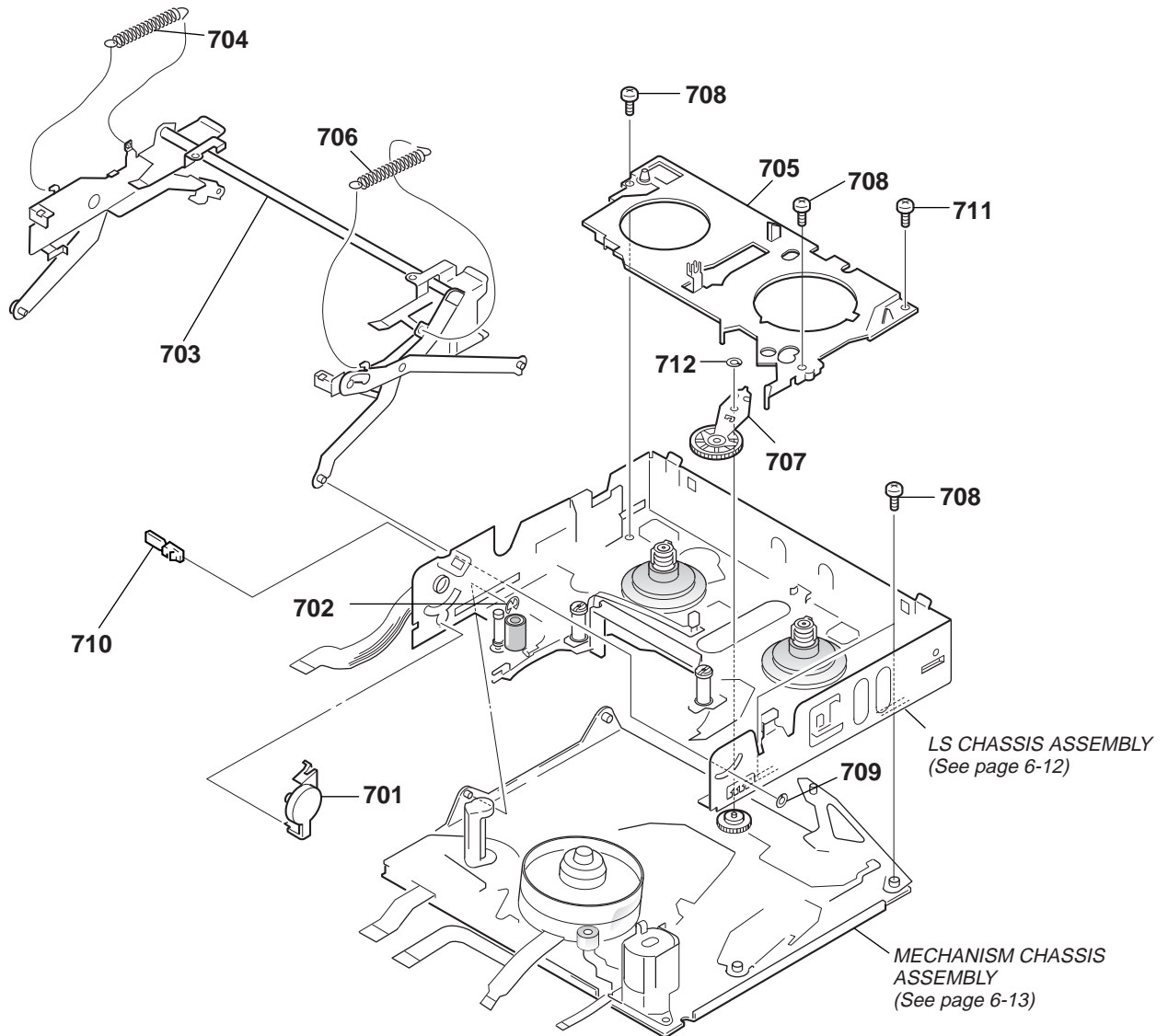
6-1-10. LENS BLOCK ASSEMBLY



Be sure to read “Precautions upon replacing CCD imager” on page 4-11,14 when changing the CCD imager.

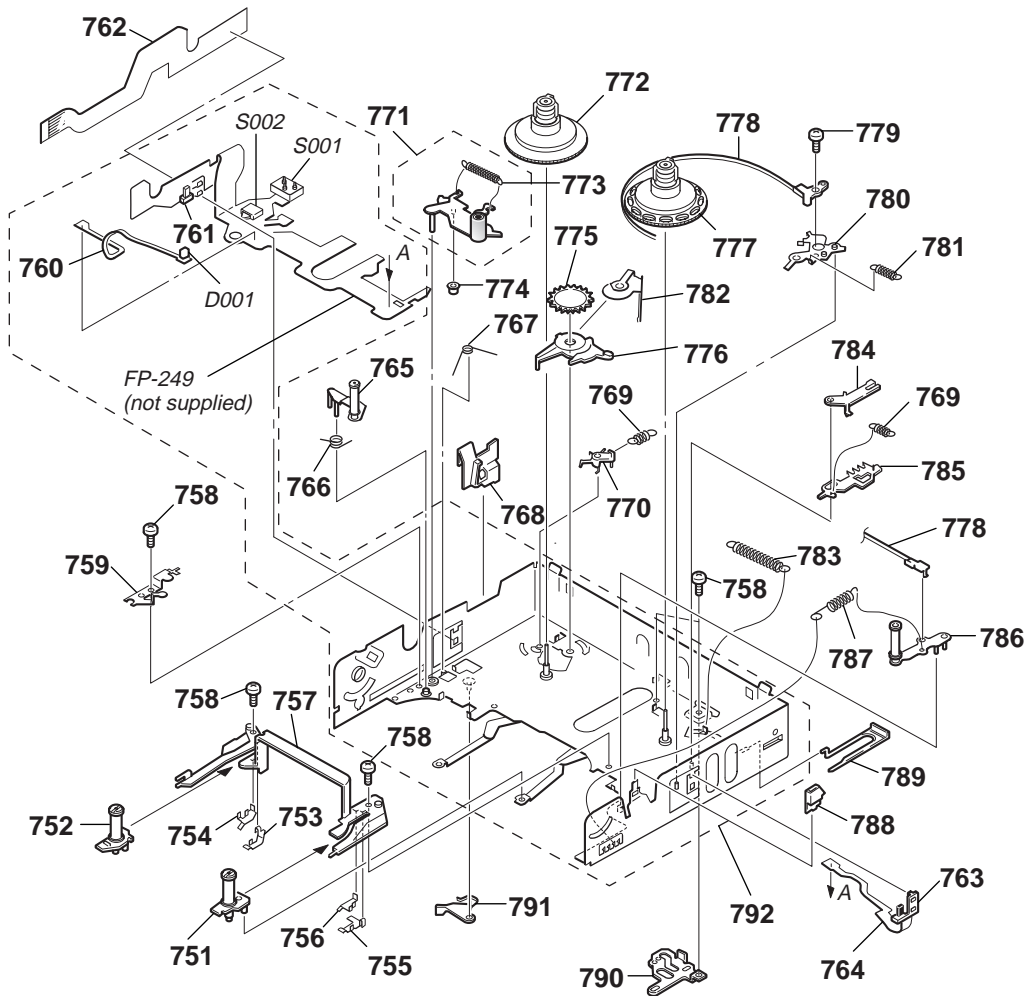
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
451	8-848-729-01	DEVICE, LENS LSV-630A		461	3-968-054-11	RUBBER (FM), SHIELD	
452	X-3949-355-1	IRIS FLEXIBLE ASSY 630 (N)		462	A-7073-865-A	CD-212 BOARD, COMPLETE (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
454	3-053-853-01	TAPPING (B1.7X4)		462	A-7073-940-A	CD-213 BOARD, COMPLETE (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
455	3-653-827-01	LEVER, IR		463	3-318-203-11	SCREW (B1.7X6), TAPPING	
456	3-053-800-01	SPRING, RETAIN		IC1401	A-7030-821-A	CCD BLOCK ASSY (CCD IMAGER) (EXCEPT:TRV110E/TRV210E/TR310E/TR7000E/TR7100E)	
457	3-053-799-01	GEAR, IR		IC2401	A-7030-885-A	CCD BLOCK ASSY (CCD IMAGER) (TRV110E/TRV210E/TR310E/TR7000E/TR7100E)	
458	3-713-791-41	SCREW, TAPPING (M1.7X5), P2		M905	1-763-262-11	MOTOR, FOCUS STEPPING	
459	3-978-981-11	ADAPTOR (FK), CCD FITTING		M906	1-763-046-11	MOTOR, ZOOM STEPPING	
460	1-758-155-21	FILTER BLOCK, OPTICAL (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)					
460	1-758-216-21	FILTER BLOCK, OPTICAL (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)					

6-1-11. CASSETTE COMPARTMENT ASSEMBLY



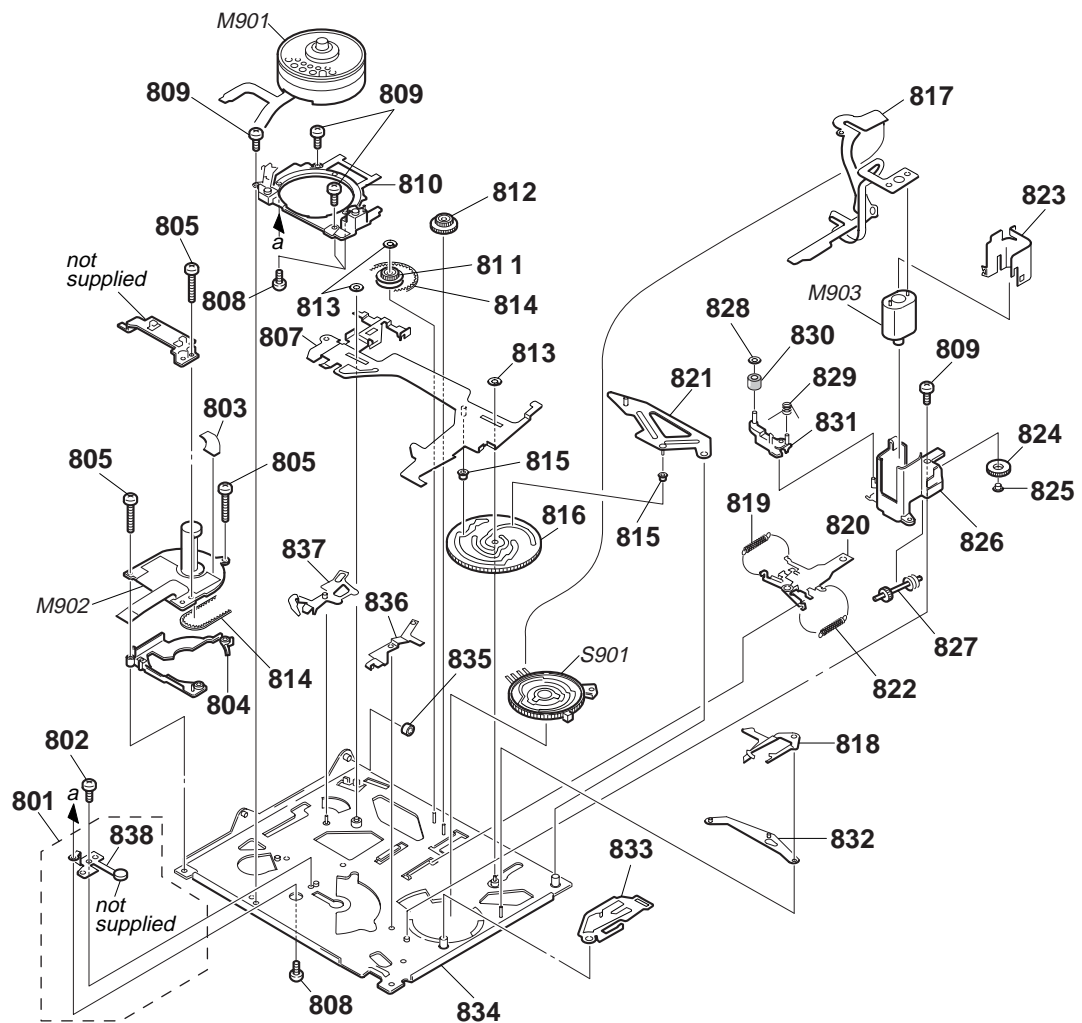
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
701	A-7040-421-A	DAMPER ASSY		707	X-3949-383-2	GEAR ASSY (E), GOOSENECK	
702	7-624-102-04	STOP RING 1.5, TYPE -E		708	3-947-503-01	SCREW (M1.4X2.5)	
703	X-3949-153-2	CASSETTE COMPARTMENT ASSY		709	3-727-176-01	WASHER, STOPPER	
704	3-965-587-03	SPRING(POWER TENSION),TENSION		710	3-971-076-01	FASTENER, D	
705	3-989-479-01	RETAINER (2), GOOSENECK		711	3-976-055-01	SCREW (M1.4X1)	
706	3-973-268-01	SPRING(POWER TENSION),TENSION		712	3-331-007-21	WASHER	

6-1-12. LS CHASSIS ASSEMBLY



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE		774	3-965-579-01	ROLLER, PINCH PRESS	
752	A-7040-418-B	BASE (T) BLOCK ASSY, GUIDE		775	3-965-563-01	GEAR, T SOFT	
753	3-965-559-01	STOPPER (T)		776	3-965-565-01	CLAW, T SOFT	
754	3-965-557-01	STOPPER (T), GB		777	X-3945-397-1	DECK ASSY, REEL, S	
755	3-965-558-01	STOPPER (S)		778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
756	3-965-556-01	STOPPER (S), GB		779	3-945-756-01	SCREW (M1.4X3)	
757	3-965-553-01	RAIL, GUIDE		780	3-965-583-01	ARM, RVS	
758	3-947-503-01	SCREW (M1.4X2.5)		781	3-965-580-01	SPRING (ARM, RVS), TENSION	
759	3-965-573-01	RETAINER, TG4		782	3-966-384-01	SPRING, T SOFT	
760	1-658-213-11	FP-355 FLEXIBLE BOARD		783	3-965-578-01	SPRING, TENSION COIL	
761	3-965-552-01	HOLDER (T), SENSOR		784	3-965-560-01	RATCHET, S	
762	1-657-786-13	FP-221 FLEXIBLE BOARD		785	3-965-561-01	PLATE, RELEASE, S RATCHET	
763	3-965-551-01	HOLDER (S), SENSOR		786	X-3945-395-1	ARM ASSY, TG1	
764	1-658-214-11	FP-356 FLEXIBLE BOARD		787	3-965-576-01	SPRING (TG1), TENSION	
765	A-7040-417-A	ARM BLOCK ASSY, TG4		788	3-965-567-01	LID OPEN	
766	3-965-574-01	SPRING (RETURN, TG4), TORSION		789	3-965-566-01	COVER, LS GUIDE	
767	3-965-575-01	SPRING (PINCH), TORSION		* 790	3-965-577-01	PLATE, CAM, LS	
768	3-965-568-11	GUIDE, LOCK		791	3-965-569-01	ARM, EJ	
769	3-965-562-01	SPRING (RATCHET), TENSION		792	A-7040-427-A	CHASSIS (S1) ASSY, LS	
770	3-965-581-03	RATCHET, T		D001	8-719-988-42	DIODE GL453	
771	X-3949-380-1	ARM ASSY (E), PINCH		S001	1-692-614-11	SWITCH, PUSH (3KEY)	
772	X-3945-398-2	DECK ASSY, REEL, T				(Hi8/ME/MP,REC PROOF)	
773	3-965-648-01	SPRING (PINCH), TENSION		S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C.LOCK)	

6-1-13. MECHANISM CHASSIS ASSEMBLY





Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
801	X-3947-343-1	GROUND (IM) ASSY, SHAFT		823	3-965-542-01	SHIELD, MOTOR	
802	3-965-550-02	SCREW (M1.7X1.6)		824	3-965-539-01	GEAR (A)	
803	1-672-542-11	FP-38 FLEXIBLE BOARD		825	3-965-538-01	SLEEVE, MOTOR HOLDER	
804	3-053-986-01	SPACER (E), CAPSTAN		826	3-965-540-01	HOLDER, MOTOR	
805	3-965-549-11	SCREW (M1.4X 6.7)		827	3-965-541-01	SHAFT, WORM	
807	3-971-644-02	SLIDER (2), M		828	3-321-393-01	WASHER, STOPPER (TR7000E:AEP)	
808	X-3947-895-1	SCREW ASSY, DRUM ATTACHED		829	3-965-724-01	SPRING (RETURN, HC), TORSION	
809	3-947-503-01	SCREW (M1.4X2.5)		830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
810	A-7040-494-A	BASE BLOCK ASSY, DRUM		831	X-3945-407-1	ARM ASSY, HC ROLLER	
811	3-965-527-01	GEAR, CHANGE		832	3-965-531-01	ARM, GL	
812	3-965-544-01	GEAR, RELAY		833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
813	3-331-007-21	WASHER (TR7000E:AEP)		834	X-3949-382-4	CHASSIS ASSY (E), MECHANICAL	
814	3-965-546-01	BELT, TIMING		835	3-965-526-02	ROLLER, LS GUIDE	
815	3-965-533-01	ROLLER, LS		836	3-965-547-01	ARM, HC DRIVING	
816	3-965-528-01	GEAR, CAM		837	3-965-534-01	PLATE, PRESS, PINCH	
817	1-657-784-11	FP-220 FLEXIBLE BOARD		838	3-974-320-02	GROUND (IM), SHAFT	
818	3-965-529-01	PLATE, REGULATOR, TENSION		M901	A-7048-904-A	DRUM BLOCK ASSY (DKH-01A-R)	
819	3-965-536-01	SPRING (LIMITER ARM T), COILO		M902	8-835-635-01	MOTOR, DC SCE12A/C-NP (CAPSTAN)	
820	X-3945-388-1	SLIDER ASSY, GL		M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
821	3-965-532-21	ARM, LS		S901	1-762-436-15	SWITCH, ROTARY (ENCODER)	
822	3-965-535-01	SPRING (LIMITER ARM S), COIL					


6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
uF: μF
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: μH
- SEMICONDUCTORS
In each case, u: μ , for example:
uA..., $\mu\text{A}...$, uPA..., $\mu\text{PA}...$,
uPB..., $\mu\text{PB}...$, uPC..., $\mu\text{PC}...$,
uPD..., $\mu\text{PD}...$
- Abbreviation
CND : Canadian model
EE : East European model
NE : North European model
RU : Russian model
HK : Hong Kong model
AUS : Australian model
CN : Chinese model
BR : Brazilian model
JE : Tourist model

When indicating parts by reference number, please include the board name.

The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks				
A-7073-865-A	CD-212 BOARD, COMPLETE (TRV103/TRV110/TRV110P/TRV203/TRV210/ TRV310/TRV310P/TRV315/TR7000) ***** (Ref.No:10000 Series) (IC1401 is not included in this complete board.) < CAPACITOR >	C1402	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C1405	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V		
C1406	1-113-682-11	TANTAL. CHIP	33uF	20%	10V		
C1407	1-107-820-11	CERAMIC CHIP	0.1uF		16V		
	< CONNECTOR >	CN1401	1-766-346-21	CONNECTOR, FFC/FPC 16P			
	< IC >	IC1401	A-7030-821-A	CCD BLOCK ASSY (CCD IMAGER)			
	< COIL >	L1402	1-414-757-11	INDUCTOR	100uH		
	< TRANSISTOR >	Q1401	8-729-117-73	TRANSISTOR 2SC4178-F13F14-T1			
	< RESISTOR >	R1401	1-218-990-11	SHORT	0		
		R1402	1-218-990-11	SHORT	0		
		R1403	1-218-959-11	RES,CHIP	3.3K	5% 1/16W	
A-7073-940-A	CD-213 BOARD, COMPLETE (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E) ***** (Ref.No:10000 Series) (IC2401 is not included in this complete board.) < CAPACITOR >	C2401	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C2402	1-119-751-11	TANTAL. CHIP	22uF	20%	16V		
C2406	1-113-682-11	TANTAL. CHIP	33uF	20%	10V		
C2407	1-107-820-11	CERAMIC CHIP	0.1uF		16V		
C2408	1-135-177-21	TANTALUM CHIP	1uF	20%	20V		
C2409	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V		
C2411	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V		
	< CONNECTOR >	CN2401	1-766-346-21	CONNECTOR, FFC/FPC 16P			
	< IC >	IC2401	A-7030-885-A	CCD BLOCK ASSY (CCD IMAGER)			
IC2402	8-759-561-46	IC AD8014ART-REEL7					
	< COIL >	L2401	1-414-757-11	INDUCTOR	100uH		
L2402	1-414-757-11	INDUCTOR		100uH			
	< RESISTOR >	R2401	1-218-940-11	RES,CHIP	82	5% 1/16W	
R2402	1-218-990-11	SHORT	0				
R2404	1-218-953-11	RES,CHIP	1K	5%	1/16W		
R2405	1-218-961-11	RES,CHIP	4.7K	5%	1/16W		
R2406	1-218-962-11	RES,CHIP	5.6K	5%	1/16W		
A-7073-870-A	CF-62(B) BOARD, COMPLETE (TRV103/TRV110/TRV110E/TRV110P) ***** (Ref.No.:7000 Series)	A-7073-921-A	CF-65(C) BOARD, COMPLETE (TR7000/TR7000E/TR7100E) ***** (Ref.No.:9000 Series)	A-7073-926-A	CF-63(C) BOARD, COMPLETE (TRV315) *****	A-7073-955-A	CF-63(B) BOARD, COMPLETE (TRV203/TRV210/TRV210E/TRV310/TRV310P) ***** (Ref.No.:8000 Series)
	< BATTERY HOLDER >	BH001	1-550-104-11	HOLDER, BATTERY			
	< BUZZER >	BZ001	1-529-107-11	BUZZER, PIEZOELECTRIC (TR7000/TR7000E/TR7100E)			

Be sure to read "Precautions upon replacing CCD imager" on page 4-11,14 when changing the CCD imager.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
		< CAPACITOR >					
C003	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TR7000/TR7000E/TR7100E)		R015	1-216-826-11	METAL CHIP 2.7K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)	
		< CONNECTOR >		R016	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
CN001	1-778-637-21	CONNECTOR, FFC/FPC (ZIF) 50P		R022	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
* CN002	1-566-540-11	CONNECTOR, FPC (NON ZIF) 8P (TRV103/TRV110/TRV110E/TRV110P)		R023	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
CN002	1-774-765-11	CONNECTOR, FFC/FPC 8P (EXCEPT:TRV103/TRV110/TRV110E/TRV110P)		R025	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
* CN003	1-580-055-21	PIN, CONNECTOR (SMD) 2P (TRV103/TRV110/TRV110E/TRV110P)		R026	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
CN003	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)		R029	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
CN006	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P (EXCEPT:TR7000/TR7000E/TR7100E)		R030	1-216-833-11	METAL CHIP 10K 5% 1/16W	
CN007	1-779-334-11	CONNECTOR, FFC/FPC 20P (TRV315/TR7000/TR7000E/TR7100E)		R031	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
* CN008	1-778-283-11	CONNECTOR, FFC/FPC 4P (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)		R032	1-216-828-11	METAL CHIP 3.9K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)	
CN009	1-691-364-21	CONNECTOR, FFC/FPC (ZIF) 26P (TR7000/TR7000E/TR7100E)		R036	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
CN009	1-778-509-21	PIN, CONNECTOR (PC BOARD) 11P (EXCEPT:TR7000/TR7000E/TR7100E)		R037	1-216-832-11	METAL CHIP 8.2K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)	
CN010	1-774-633-11	CONNECTOR, FFC/FPC 8P (TRV103/TRV110/TRV110E/TRV110P)		R038	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
CN010	1-779-328-21	CONNECTOR, FFC/FPC 8P (EXCEPT:TRV103/TRV110/TRV110E/TRV110P)		R039	1-216-838-11	METAL CHIP 27K 5% 1/16W	
		< DIODE >		R040	1-216-838-11	METAL CHIP 27K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)	
D001	8-719-062-16	DIODE 01ZA8.2(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R041	1-216-838-11	METAL CHIP 27K 5% 1/16W	
D003	8-719-062-16	DIODE 01ZA8.2(TPL3) (TR7000/TR7000E/TR7100E)		R042	1-216-864-11	METAL CHIP 0 5% 1/16W (TR7000/TR7000E/TR7100E)	
D005	8-719-073-03	DIODE MA8082-(K8).S0		R044	1-216-864-11	METAL CHIP 0 5% 1/16W (TR7000/TR7000E/TR7100E)	
D006	8-719-073-03	DIODE MA8082-(K8).S0		R046	1-216-840-11	METAL CHIP 39K 5% 1/16W (TR7000/TR7000E/TR7100E)	
D008	8-719-073-01	DIODE MA111-(K8).S0		R049	1-216-864-11	METAL CHIP 0 5% 1/16W	
D013	8-719-073-03	DIODE MA8082-(K8).S0		R050	1-216-845-11	METAL CHIP 100K 5% 1/16W	
		< IC >		R052	1-216-816-11	METAL CHIP 390 5% 1/16W	
IC001	8-759-573-02	IC BU9735K-E2 (TR7000/TR7000E/TR7100E)		R053	1-216-803-11	METAL CHIP 33 5% 1/16W	
		< TRANSISTOR >				< SWITCH >	
Q001	8-729-420-50	TRANSISTOR UN5215-(TX) (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)		S001	1-771-138-61	SWITCH, KEY BOARD (DIGITAL EFFECT)	
Q003	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX		S003	1-771-138-61	SWITCH, KEY BOARD (DATE CORD)	
Q005	8-729-230-72	TRANSISTOR 2SA1362-YG-EL		S004	1-771-029-21	SWITCH, TACTILE (PROGRAM AE) (EXCEPT:TR7000/TR7000E/TR7100E)	
		< RESISTOR >		S004	1-771-138-61	SWITCH, KEY BOARD (PROGRAM AE) (TR7000/TR7000E/TR7100E)	
R003	1-216-814-11	METAL CHIP 270 5% 1/16W		S006	1-771-138-61	SWITCH, KEY BOARD (PICTURE EFFECT)	
R005	1-216-833-11	METAL CHIP 10K 5% 1/16W		S010	1-771-029-21	SWITCH, TACTILE (MENU) (TR7000/TR7000E/TR7100E)	
R006	1-216-833-11	METAL CHIP 10K 5% 1/16W		S010	1-771-138-61	SWITCH, KEY BOARD (MENU) (EXCEPT:TR7000/TR7000E/TR7100E)	
R007	1-216-833-11	METAL CHIP 10K 5% 1/16W		S012	1-771-029-21	SWITCH, TACTILE (EXPOSURE)	
R008	1-216-833-11	METAL CHIP 10K 5% 1/16W		S013	1-771-138-61	SWITCH, KEY BOARD (END SEARCH) (EXCEPT:TR7000/TR7000E/TR7100E)	
R009	1-216-833-11	METAL CHIP 10K 5% 1/16W		S015	1-771-025-41	SWITCH, ROTARY (ENCODER) (SEL/PUSH EXEC)	
R011	1-216-855-11	METAL CHIP 680K 5% 1/16W (TR7000/TR7000E/TR7100E)		S017	1-771-029-21	SWITCH, TACTILE (BACK LIGHT) (EXCEPT:TR7000/TR7000E/TR7100E)	
R012	1-216-864-11	METAL CHIP 0 5% 1/16W (TR7000/TR7000E/TR7100E)		S017	1-771-138-61	SWITCH, KEY BOARD (BACK LIGHT) (TR7000/TR7000E/TR7100E)	
R013	1-216-822-11	METAL CHIP 1.2K 5% 1/16W		S022	1-771-138-61	SWITCH, KEY BOARD (DISPLAY) (EXCEPT:TR7000/TR7000E/TR7100E)	
R014	1-216-826-11	METAL CHIP 2.7K 5% 1/16W (TR7000/TR7000E/TR7100E)		S024	1-762-648-21	SWITCH, SLIDE (START/STOP MODE)	
				S027	1-771-029-31	SWITCH, TACTILE (FADER) (EXCEPT:TR7000/TR7000E/TR7100E)	
				S027	1-771-138-61	SWITCH, KEY BOARD (FADER) (TR7000/TR7000E/TR7100E)	

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
A-7073-866-A	DD-117(V) BOARD, COMPLETE (EXCEPT:TRV315/TR7000/TR7000E/TR7100E) *****			C847	1-164-506-11	CERAMIC CHIP 4.7uF	16V
A-7073-917-A	DD-117 (C) BOARD, COMPLETE (TR7000/TR7000E/TR7100E) *****			C848	1-164-506-11	CERAMIC CHIP 4.7uF	16V
A-7073-922-A	DD-117(VC) BOARD, COMPLETE (TRV315) ***** (Ref.No.:6000 Series)			C849	1-135-149-21	TANTALUM CHIP 2.2uF 20%	10V (EXCEPT:TR7000/TR7000E/TR7100E)
	< CAPACITOR >			C850	1-135-149-21	TANTALUM CHIP 2.2uF 20%	10V
C801	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V	C851	1-135-157-21	TANTALUM CHIP 10uF 20%	6.3V
C802	1-162-960-11	CERAMIC CHIP 220PF	10% 50V	C852	1-164-505-11	CERAMIC CHIP 2.2uF	16V (EXCEPT:TR7000/TR7000E/TR7100E)
C803	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V	C853	1-165-319-11	CERAMIC CHIP 0.1uF	50V (EXCEPT:TR7000/TR7000E/TR7100E)
C804	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V	C854	1-135-157-21	TANTALUM CHIP 10uF 20%	6.3V (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)
C805	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V	C855	1-135-149-21	TANTALUM CHIP 2.2uF 20%	10V
C806	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V	C856	1-109-982-11	CERAMIC CHIP 1uF	10% 10V
C807	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C857	1-135-157-21	TANTALUM CHIP 10uF 20%	6.3
C808	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V	C860	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V
C809	1-162-962-11	CERAMIC CHIP 470PF	10% 50V	C861	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)
C810	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V	C861	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V (TRV315/TR7000/TR7000E/TR7100E)
C811	1-162-965-11	CERAMIC CHIP 0.0015uF	10% 50V	C862	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V (EXCEPT:TR7000/TR7000E/TR7100E)
C812	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C863	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V (EXCEPT:TR7000/TR7000E/TR7100E)
C813	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C864	1-113-985-11	TANTAL. CHIP 10uF	20% 20V
C815	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C865	1-164-505-11	CERAMIC CHIP 2.2uF	16V (EXCEPT:TR7000/TR7000E/TR7100E)
C817	1-113-991-11	TANTAL. CHIP 33uF	20% 16V	C866	1-164-505-11	CERAMIC CHIP 2.2uF	16V (EXCEPT:TR7000/TR7000E/TR7100E)
C818	1-163-038-91	CERAMIC CHIP 0.1uF	25V	C867	1-164-346-11	CERAMIC CHIP 1uF	16V (TRV315/TR7000/TR7000E/TR7100E)
C819	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C868	1-135-214-21	TANTAL. CHIP 4.7uF	20% 20V
C820	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C869	1-164-505-11	CERAMIC CHIP 2.2uF	16V (EXCEPT:TR7000/TR7000E/TR7100E)
C821	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C871	1-135-157-21	TANTALUM CHIP 10uF	20% 6.3V
C823	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V	C872	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C824	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V	C873	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V (EXCEPT:TR7000/TR7000E/TR7100E)
C825	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V	C875	1-164-489-11	CERAMIC CHIP 0.22uF	10% 16V (EXCEPT:TR7000/TR7000E/TR7100E)
C826	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V	C876	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V
C827	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V (EXCEPT:TR7000/TR7000E/TR7100E)	C877	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V
C828	1-162-962-11	CERAMIC CHIP 470PF	10% 50V (EXCEPT:TR7000/TR7000E/TR7100E)			< CONNECTOR >	
C829	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V (EXCEPT:TR7000/TR7000E/TR7100E)	* CN801	1-580-756-21	PIN, CONNECTOR (SMD) 7P	
C830	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V (EXCEPT:TR7000/TR7000E/TR7100E)	CN931	1-774-597-41	CONNECTOR, BOARD TO BOARD 70P (EXCEPT:TR7000/TR7000E/TR7100E)	
C831	1-164-489-11	CERAMIC CHIP 0.22uF	10% 16V (EXCEPT:TR7000/TR7000E/TR7100E)	CN931	1-793-129-21	CONNECTOR, BOARD TO BOARD 70P (TR7000/TR7000E/TR7100E)	
C832	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V	CN933	1-785-627-21	PIN, CONNECTOR (PC BOARD) 10P (EXCEPT:TR7000/TR7000E/TR7100E)	
C833	1-162-974-11	CERAMIC CHIP 0.01uF	50V (EXCEPT:TR7000/TR7000E/TR7100E)	CN934	1-766-342-21	CONNECTOR, FFC/FPC 12P	
C834	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V	CN935	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P	
C836	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V	CN936	1-774-631-21	CONNECTOR, FFC/FPC 6P	
C837	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V				
C838	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V				
C840	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V (EXCEPT:TR7000/TR7000E/TR7100E)				
C841	1-135-149-21	TANTALUM CHIP 2.2uF	20% 10V				
C842	1-135-216-11	TANTALUM CHIP 10uF	20% 10V (EXCEPT:TR7000/TR7000E/TR7100E)				
C843	1-135-157-21	TANTALUM CHIP 10uF	20% 6.3V				
C844	1-135-157-21	TANTALUM CHIP 10uF	20% 6.3V				
C846	1-135-149-21	TANTALUM CHIP 2.2uF	20% 10V				

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
		< DIODE >					
D806	8-719-027-76	DIODE 1SS357-TPH3 (EXCEPT:TR7000/TR7000E/TR7100E)		L816	1-414-396-21	INDUCTOR 4.7uH (TRV315/TR7000/TR7000E/TR7100E)	
D809	8-719-027-77	DIODE MA796-TX		L817	1-414-396-21	INDUCTOR 4.7uH	
D810	8-719-027-76	DIODE 1SS357-TPH3 (EXCEPT:TR7000/TR7000E/TR7100E)		L818	1-414-396-21	INDUCTOR 4.7uH (EXCEPT:TR7000/TR7000E/TR7100E)	
D812	8-719-027-76	DIODE 1SS357-TPH3 (EXCEPT:TR7000/TR7000E/TR7100E)		L819	1-414-400-11	INDUCTOR 33uH	
D813	8-719-073-03	DIODE MA8082-(K8).S0		L820	1-424-674-11	INDUCTOR 22uH (EXCEPT:TR7000/TR7000E/TR7100E)	
D814	8-719-073-03	DIODE MA8082-(K8).S0		L821	1-412-056-11	INDUCTOR CHIP 4.7uH (EXCEPT:TR7000/TR7000E/TR7100E)	
D815	8-719-073-03	DIODE MA8082-(K8).S0				< FUSE >	
D816	8-719-027-76	DIODE 1SS357-TPH3		△PS801	1-576-286-21	FUSE, MICRO (1.4A/24V)	
D817	8-719-073-02	DIODE MA728-(K8).S0		△PS803	1-576-286-21	FUSE, MICRO (1.4A/24V)	
D818	8-719-027-76	DIODE 1SS357-TPH3 (EXCEPT:TR7000/TR7000E/TR7100E)		△PS804	1-576-286-21	FUSE, MICRO (1.4A/24V)	
				△PS805	1-576-286-21	FUSE, MICRO (1.4A/24V) (EXCEPT:TR7000/TR7000E/TR7100E)	
D819	8-719-073-01	DIODE MA111-(K8).S0		△PS806	1-576-286-21	FUSE, MICRO (1.4A/24V)	
D822	8-719-056-89	DIODE MA8120-TX				< TRANSISTOR >	
D933	8-719-062-16	DIODE 01ZA8.2(TPL3)					
D934	8-719-062-16	DIODE 01ZA8.2(TPL3)		Q801	8-729-024-48	TRANSISTOR 2SK1830-TE85L	
D936	8-719-062-16	DIODE 01ZA8.2(TPL3)		Q803	8-729-804-41	TRANSISTOR 2SB1122-ST-TD	
		< FERRITE BEAD >		Q804	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
FB931	1-414-760-21	FERRITE 0UH		Q805	8-729-024-48	TRANSISTOR 2SK1830-TE85L	
FB931	1-500-238-22	FERRITE 0UH		Q806	8-729-042-29	TRANSISTOR RN1104F(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)	
FB931	1-500-329-11	INDUCTOR CHIP 0UH					
FB932	1-414-760-21	FERRITE 0UH		Q807	8-729-804-41	TRANSISTOR 2SB1122-ST-TD	
FB932	1-500-238-22	FERRITE 0UH		Q808	8-729-046-98	TRANSISTOR CPH6702-TL	
				Q809	8-729-046-98	TRANSISTOR CPH6702-TL	
FB932	1-500-329-11	INDUCTOR CHIP 0UH		Q810	8-729-046-98	TRANSISTOR CPH6702-TL	
FB933	1-414-760-21	FERRITE 0UH		Q812	8-729-044-58	TRANSISTOR SI2304DS-T1	
FB933	1-500-238-22	FERRITE 0UH					
FB933	1-500-329-11	INDUCTOR CHIP		Q813	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)	
		< IC >		Q814	8-729-046-98	TRANSISTOR CPH6702-TL	
IC801	8-759-384-78	IC SN104241PM-TEB		Q815	8-729-046-98	TRANSISTOR CPH6702-TL	
IC802	8-759-492-30	IC MB3817PFV-G-BND (EXCEPT:TR7000/TR7000E/TR7100E)		Q817	8-729-044-58	TRANSISTOR SI2304DS-T1	
				Q819	8-729-046-98	TRANSISTOR CPH6702-TL (EXCEPT:TR7000/TR7000E/TR7100E)	
		< COIL >					
L804	1-412-056-11	INDUCTOR CHIP 4.7uH (EXCEPT:TR7000/TR7000E/TR7100E)		Q820	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L805	1-409-532-41	INDUCTOR 33uH		Q823	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L805	1-424-675-51	INDUCTOR 33uH		Q824	8-729-042-29	TRANSISTOR MGSF3455VTI	
L806	1-424-674-11	INDUCTOR 22uH		Q826	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L807	1-424-674-11	INDUCTOR 22uH		Q827	8-729-037-61	TRANSISTOR RN2104F(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)	
L808	1-424-674-11	INDUCTOR 22uH					
L809	1-424-674-11	INDUCTOR 22uH		Q828	8-729-042-29	TRANSISTOR RN1104F(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)	
L810	1-414-396-21	INDUCTOR 4.7uH		Q829	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L811	1-414-396-21	INDUCTOR 4.7uH		Q830	8-729-037-52	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L812	1-414-396-21	INDUCTOR 4.7uH		Q831	8-729-046-75	TRANSISTOR SI2301DS-T1	
				Q832	8-729-046-75	TRANSISTOR SI2301DS-T1 (EXCEPT:TR7000/TR7000E/TR7100E)	
L813	1-414-396-21	INDUCTOR 4.7uH					
L814	1-414-396-21	INDUCTOR 4.7uH (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)		Q833	8-729-041-23	TRANSISTOR NDS356AP (EXCEPT:TR7000/TR7000E/TR7100E)	
L814	1-414-400-11	INDUCTOR 22uH (TRV315/TR7000/TR7000E/TR7100E)		Q834	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L815	1-414-396-21	INDUCTOR 4.7uH		Q835	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)	
L816	1-414-396-21	INDUCTOR 4.7uH (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)		Q836	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)	
				Q837	8-729-037-52	TRANSISTOR 2SD2216J-QR(TX).S0 (TRV315/TR7000/TR7000E/TR7100E)	

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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
Q838	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R827	1-216-821-11	METAL CHIP 1K 5%	1/16W
Q839	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R828	1-216-831-11	METAL CHIP 6.8K 5%	1/16W
Q840	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R829	1-216-879-11	RES, CHIP 22K 0.50%	1/16W
Q841	8-729-037-53	TRANSISTOR 2SB1462J-QR(TX).SO (TRV315/TR7000/TR7000E/TR7100E)		R830	1-218-883-11	RES, CHIP 47K 5%	1/16W
Q842	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R831	1-216-841-11	METAL CHIP 47K 5%	1/16W
Q843	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)		R832	1-216-879-11	RES, CHIP 22K 0.50%	1/16W
Q844	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R833	1-216-833-11	METAL CHIP 10K 5%	1/16W
Q845	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R834	1-218-881-11	RES, CHIP 27K 0.50%	1/16W
Q846	8-729-037-52	TRANSISTOR 2SD2216J-QR(TX).SO (TRV315/TR7000/TR7000E/TR7100E)		R835	1-216-879-11	RES, CHIP 22K 0.50%	1/16W
Q847	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R836	1-216-837-11	METAL CHIP 22K 5%	1/16W
Q848	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R837	1-216-855-11	RES, CHIP 2.2K 0.50%	1/16W
Q849	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R838	1-216-837-11	METAL CHIP 22K 5%	1/16W
Q850	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R839	1-216-837-11	METAL CHIP 22K 5%	1/16W
△ Q851	8-729-046-77	TRANSISTOR SI4963DY-T1		R840	1-216-839-11	METAL CHIP 33K 5%	1/16W
Q852	8-729-017-61	TRANSISTOR 2SB1581-T1		R841	1-216-834-11	METAL CHIP 12K 5%	1/16W
Q853	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)		R842	1-218-903-11	RES, CHIP 220K 0.50%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
Q854	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R843	1-218-895-11	RES, CHIP 100K 0.50%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
Q855	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R844	1-216-296-91	SHORT 0	
Q856	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R845	1-216-847-11	METAL CHIP 1K 0.50%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
Q932	8-729-042-29	TRANSISTOR RN1104F(TPL3)		R846	1-216-296-91	SHORT 0	
Q933	8-729-042-29	TRANSISTOR RN1104F(TPL3)		R847	1-216-296-91	SHORT 0	
Q934	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)		R849	1-216-837-11	METAL CHIP 22K 5%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
< RESISTOR >				R850	1-216-857-11	METAL CHIP 1M 5%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
R801	1-216-841-11	METAL CHIP 47K 5%	1/16W	R852	1-216-851-11	METAL CHIP 1.5K 0.5%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
R802	1-216-893-11	RES, CHIP 82K 0.50%	1/16W	R853	1-216-849-11	METAL CHIP 220K 5%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
R803	1-216-833-11	METAL CHIP 10K 5%	1/16W	R854	1-216-849-11	RES, CHIP 47K 0.5%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
R804	1-216-837-11	METAL CHIP 22K 5%	1/16W	R859	1-216-845-11	METAL CHIP 100K 5%	1/16W
R805	1-216-835-11	METAL CHIP 15K 5%	1/16W	R864	1-216-857-11	METAL CHIP 1M 5%	1/16W
R806	1-218-879-11	RES,CHIP 22K 0.50%	1/16W	R865	1-216-841-11	METAL CHIP 47K 5%	1/16W
R807	1-216-839-11	METAL CHIP 33K 5%	1/16W	R866	1-216-837-11	METAL CHIP 22K 5%	1/16W
R808	1-218-879-11	RES,CHIP 22K 0.50%	1/16W	R868	1-216-849-11	METAL CHIP 220K 5%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
R809	1-218-813-11	METAL CHIP 220 5%	1/16W	R870	1-216-845-11	METAL CHIP 100K 5%	1/16W (TRV315/TR7000/TR7000E/TR7100E)
R810	1-216-837-11	METAL CHIP 22K 5%	1/16W	R870	1-216-857-11	METAL CHIP 1M 5%	1/16W (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)
R811	1-216-879-11	RES, CHIP 22K 0.50%	1/16W	R871	1-216-857-11	METAL CHIP 1M 5%	1/16W
R812	1-218-901-11	RES,CHIP 180K 0.50%	1/16W	R872	1-216-845-11	METAL CHIP 100K 5%	1/16W
R813	1-216-853-11	METAL CHIP 470K 5%	1/16W	R873	1-216-841-11	METAL CHIP 47K 5%	1/16W
R814	1-218-879-11	RES,CHIP 22K 0.50%	1/16W	R874	1-216-849-11	METAL CHIP 220K 5%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
R815	1-216-833-11	METAL CHIP 10K 5%	1/16W	R875	1-216-849-11	METAL CHIP 220K 5%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
R816	1-216-879-11	RES, CHIP 22K 0.50%	1/16W	R876	1-216-849-11	METAL CHIP 220K 5%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
R817	1-216-879-11	RES, CHIP 22K 0.50%	1/16W	R878	1-216-857-11	METAL CHIP 1M 5%	1/16W (EXCEPT:TR7000/TR7000E/TR7100E)
R818	1-218-813-11	METAL CHIP 220 5%	1/16W				
R819	1-218-887-11	RES,CHIP 47K 0.50%	1/16W				
R820	1-216-845-11	METAL CHIP 100K 5%	1/16W				
R821	1-216-879-11	RES, CHIP 22K 0.50%	1/16W				
R822	1-216-150-91	RES, CHIP 10 5%	1/8W				
R824	1-216-837-11	METAL CHIP 22K 5%	1/16W				
R825	1-216-879-11	RES, CHIP 22K 0.50%	1/16W				
R826	1-216-821-11	METAL CHIP 1K 5%	1/16W				

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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R879	1-216-837-11	METAL CHIP 22K 5% 1/16W		R916	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV315/TR7000/TR7000E/TR7100E)	
R880	1-218-895-11	RES,CHIP 100K 0.50% 1/16W		R917	1-216-864-11	METAL CHIP 0 5% 1/16W (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)	
R881	1-218-877-11	RES,CHIP 18K 0.50% 1/16W		R918	1-216-849-11	METAL CHIP 220K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)	
R882	1-218-903-11	RES,CHIP 220K 0.50% 1/16W		R921	1-216-296-91	SHORT 0	
R883	1-216-841-11	METAL CHIP 47K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		R922	1-216-296-91	SHORT 0	
R884	1-216-845-11	METAL CHIP 100K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		R923	1-216-296-91	SHORT 0	
R885	1-216-845-11	METAL CHIP 100K 5% 1/16W (TRV315/TR7000/TR7000E/TR7100E)		R924	1-216-849-11	METAL CHIP 220K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)	
R887	1-216-849-11	METAL CHIP 220K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		R925	1-216-829-11	METAL CHIP 4.7K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)	
R888	1-216-845-11	METAL CHIP 100K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		R926	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R889	1-216-837-11	METAL CHIP 22K 5% 1/16W (TRV315/TR7000/TR7000E/TR7100E)		R932	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R890	1-216-845-11	METAL CHIP 100K 5% 1/16W		R933	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R891	1-218-895-11	RES,CHIP 100K 0.50% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		R934	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R892	1-218-903-11	RES,CHIP 220K 0.50% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		R935	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R893	1-216-835-11	METAL CHIP 15K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		R936	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R894	1-216-857-11	METAL CHIP 1M 5% 1/16W (TRV315/TR7000/TR7000E/TR7100E)		R937	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R895	1-216-837-11	METAL CHIP 22K 5% 1/16W		R938	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R896	1-218-903-11	RES,CHIP 220K 0.50% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		R939	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R897	1-218-891-11	RES,CHIP 68K 0.50% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		R940	1-216-819-11	METAL CHIP 680 5% 1/16W	
R898	1-218-895-11	RES,CHIP 100K 0.50% 1/16W (TRV315/TR7000/TR7000E/TR7100E)		R941	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R899	1-218-881-11	RES,CHIP 27K 0.50% 1/16W (TRV315/TR7000/TR7000E/TR7100E)		R942	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R900	1-218-895-11	RES,CHIP 100K 0.50% 1/16W		R943	1-216-029-00	METAL CHIP 150 5% 1/10W	
R901	1-218-887-11	RES,CHIP 47K 0.50% 1/16W		R945	1-217-671-11	METAL CHIP 1 5% 1/10W	
R902	1-218-875-11	RES,CHIP 15K 0.50% 1/16W				< TRANSFORMER >	
R903	1-216-845-11	METAL CHIP 100K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		△ T801	1-429-565-21	TRANSFORMER, CONVERTER (EXCEPT:TR7000/TR7000E/TR7100E)	
R904	1-216-849-11	METAL CHIP 220K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		△ T801	1-431-749-11	TRANSFORMER, DC/DC CONVERTER (TR7000/TR7000E/TR7100E)	
R905	1-218-901-11	RES,CHIP 180K 0.50% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)					
R906	1-216-833-11	METAL CHIP 10K 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)				FP-249 BOARD, COMPLETE (Not supplied) ***** (Ref.No.:20000 Series)	
R907	1-218-903-11	RES,CHIP 220K 0.50% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)			1-658-214-11	FP-356 FLEXIBLE BOARD	
R908	1-216-841-11	METAL CHIP 47K 5% 1/16W			3-965-551-01	HOLDER (S), SENSOR	
R910	1-216-833-11	METAL CHIP 10K 5% 1/16W			3-965-552-01	HOLDER (T), SENSOR	
R911	1-218-883-11	RES,CHIP 33K 0.50% 1/16W				< HOLE ELEMENT >	
R912	1-218-879-11	RES,CHIP 22K 0.50% 1/16W		H001	8-719-033-37	ELEMENT, HALL HW-105C	
R913	1-216-857-11	METAL CHIP 1M 5% 1/16W		H002	8-719-033-37	ELEMENT, HALL HW-105C	
R914	1-216-811-11	METAL CHIP 150 5% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)				< TRANSISTOR >	
R915	1-218-911-11	RES,CHIP 470K 0.50% 1/16W (EXCEPT:TR7000/TR7000E/TR7100E)		Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F	
				Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F	
						< SWITCH >	
				S001	1-692-614-11	SWITCH, PUSH (3 KEY) (Hi8 MP,ME/MP,REC PROOF)	
				S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C.LOCK)	

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Ref. No.	Part No.	Description	Remarks
	1-658-213-11	FP-355 FLEXIBLE BOARD *****	(Ref.No.:20000 Series)
		< DIODE >	
D001	8-719-988-42	DIODE GL453	
		A-7073-869-A MA-354(I) BOARD, COMPLETE (TRV103/TRV110/TRV110E/TRV110P) ***** (Ref.No.:7000 Series)	
	A-7073-920-A	MA-357(I) BOARD, COMPLETE (TR7000/TR7000E/TR7100E) ***** (Ref.No.:9000 Series)	
	A-7073-925-A	MA-355(I) BOARD, COMPLETE (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315) ***** (Ref.No.:8000 Series)	
		< CAPACITOR >	
C300	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C301	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C302	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C303	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C304	1-162-960-11	CERAMIC CHIP 220PF 10% 50V	
C305	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C306	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C307	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C308	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C309	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C310	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C311	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C312	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C313	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C314	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C315	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C316	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C317	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C318	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C319	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C320	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C321	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C322	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C323	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C324	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C325	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C326	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C327	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C328	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C329	1-164-172-11	CERAMIC CHIP 0.0056uF 10% 25V	
C330	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C331	1-164-172-11	CERAMIC CHIP 0.0056uF 10% 25V	
C332	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C343	1-115-156-11	CERAMIC CHIP 1uF 10V	
C344	1-115-156-11	CERAMIC CHIP 1uF 10V	
C345	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C346	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C347	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C348	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V	
C349	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	

Ref. No.	Part No.	Description	Remarks
C350	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C351	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
		< CONNECTOR >	
CN300	1-774-635-21	CONNECTOR, FFC/FPC 10P	
CN301	1-778-283-11	CONNECTOR, FFC/FPC 4P	
CN302	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	
CN303	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	
CN304	1-779-335-21	CONNECTOR, FFC/FPC 22P	
		< DIODE >	
D300	8-719-073-03	DIODE MA8082-(K8).S0	
D301	8-719-073-03	DIODE MA8082-(K8).S0	
D302	8-719-073-01	DIODE MA111-(K8).S0	
D303	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D304	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D305	8-749-060-65	DIODE DCC3810	
D306	8-719-061-86	DIODE DCR2810	
D308	8-719-061-82	DIODE TLSU1002(TPX1,SONY)	
D309	8-719-073-01	DIODE MA111-(K8).S0	
		< FUSE >	
△ F300	1-533-874-11	FUSE, MICRO (200mA/24V)	
		< IC >	
IC300	8-759-494-54	IC AN2900FH-EB	
IC301	8-749-012-83	IC RS-180-T	
		< COIL >	
L300	1-414-757-11	INDUCTOR 100uH	
L301	1-414-757-11	INDUCTOR 100uH	
L302	1-414-754-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q302	8-729-140-75	TRANSISTOR 2SD999-T1-CLCK	
Q303	8-729-420-50	TRANSISTOR UN5215-(TX)	
		< RESISTOR >	
R300	1-414-228-11	INDUCTOR CHIP 0UH	
R301	1-414-228-11	INDUCTOR CHIP 0UH (Note)	
R302	1-414-228-11	INDUCTOR CHIP 0UH (Note)	
R303	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R304	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R305	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R306	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R307	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R308	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R309	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R310	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R311	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R312	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R313	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R314	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	

Note : Inductors are mounted to the location where R301, R302 are printed.

Note :
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Note :
Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
R315	1-216-833-11	METAL CHIP 10K 5%	1/16W
R316	1-216-831-11	METAL CHIP 6.8K 5%	1/16W
R317	1-216-832-11	METAL CHIP 8.2K 5%	1/16W
R318	1-414-228-11	INDUCTOR CHIP 0UH (Note)	
R319	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R320	1-216-833-11	METAL CHIP 10K 5%	1/16W
R321	1-216-839-11	METAL CHIP 33K 5%	1/16W
R322	1-414-228-11	INDUCTOR CHIP 0UH (Note)	
R323	1-216-832-11	METAL CHIP 8.2K 5%	1/16W
R324	1-216-839-11	METAL CHIP 33K 5%	1/16W
R325	1-216-839-11	METAL CHIP 33K 5%	1/16W
R326	1-414-228-11	INDUCTOR CHIP 0UH (Note)	
R327	1-414-228-11	INDUCTOR CHIP 0UH (Note)	
R331	1-216-830-11	METAL CHIP 5.6K 5%	1/16W
R332	1-216-836-11	METAL CHIP 18K 5%	1/16W
R333	1-216-839-11	METAL CHIP 33K 5%	1/16W
R334	1-216-839-11	METAL CHIP 33K 5%	1/16W
R335	1-216-864-11	METAL CHIP 0 5%	1/16W
R336	1-216-864-11	METAL CHIP 0 5%	1/16W
R338	1-216-311-00	METAL CHIP 6.8 5%	1/10W
R339	1-216-302-00	METAL CHIP 2.7 5%	1/10W
R340	1-216-824-11	METAL CHIP 1.8K 5%	1/16W
R341	1-216-864-11	METAL CHIP 0 5%	1/16W

EXCEPT:TR7000/TR7000E/TR7100E MODEL

A-7073-871-A PD-105(SHN) BOARD, COMPLETE
(TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)

A-7073-927-A PD-106(SH) BOARD, COMPLETE
(TRV203/TRV210/TRV210E/TRV315)

A-7073-942-A PD-105(SHP) BOARD, COMPLETE
(TRV110E:AEP,UK,EE,NE,RU)

A-7073-957-A PD-106(CAN) BOARD, COMPLETE
(TRV310/TRV310P)

A-7073-975-A PD-106(SHP) BOARD, COMPLETE (TRV310E)
(Ref.No.:1000 Series)

< CAPACITOR >

C5501	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5502	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5504	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5505	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5506	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5507	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C5508	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5509	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C5511	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5512	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C5513	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5514	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C5515	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C5516	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V

Ref. No.	Part No.	Description			Remarks
C5517	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5518	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5519	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C5520	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5602	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C5603	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V (TRV310/TRV310P)
C5603	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (TRV103/TRV110/TRV110E/TRV110P/TRV203/ TRV210/TRV210E/TRV310E/TRV315)
C5604	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5605	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5607	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5608	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C5610	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C5612	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C5616	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5618	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V (TRV103/TRV110/TRV110E/TRV110P/TRV203/ TRV210/TRV210E/TRV310E/TRV315)
C5619	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV103/TRV110/TRV110E/TRV110P/TRV203/ TRV210/TRV210E/TRV310E/TRV315)
C5620	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5621	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C5622	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C5623	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV310/TRV310P)
C5624	1-107-688-11	TANTAL. CHIP	1.5uF	20%	10V
C5625	1-107-688-11	TANTAL. CHIP	1.5uF	20%	10V
C5633	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C5701	1-113-682-11	TANTAL. CHIP	33uF	20%	10V
C5702	1-164-346-11	CERAMIC CHIP	1uF		16V
C5703	1-164-661-11	CERAMIC CHIP	0.018uF	10%	50V
C5704	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
△ C5705	1-113-520-11	CERAMIC CHIP	10PF	10%	3KV (TRV203/TRV210/TRV210E/TRV315)
△ C5705	1-113-521-11	CERAMIC CHIP	12PF	10%	3KV (TRV103/TRV110/TRV110E/TRV110P/TRV310/TRV310E/TRV310P)
C5706	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5801	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV103/TRV110/TRV110E/TRV110P)
C5900	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)
< CONNECTOR >					
* CN5501	1-573-984-11	CONNECTOR, BOARD TO BOARD	10P		
CN5601	1-691-362-11	CONNECTOR, FFC/FPC (ZIF)	24P		
CN5701	1-764-709-11	CONNECTOR, FFC/FPC (LIF)	10P		
CN5801	1-764-532-21	CONNECTOR, FFC/FPC (ZIF)	26P (TRV103/TRV110/TRV110E/TRV110P)		
CN5802	1-785-627-21	PIN, CONNECTOR (PC BOARD)	10P (TRV103/TRV110/TRV110E/TRV110P)		

Note : Inductors are mounted to the location where R318, R322, R326, R327 are printed.

Note :

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Note :

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
CN5803	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P (TRV103/TRV110/TRV110E/TRV110P)	
CN5804	1-778-509-21	PIN, CONNECTOR (PC BOARD) 11P (TRV103/TRV110/TRV110E/TRV110P)	
CN5805	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P (TRV103/TRV110/TRV110E/TRV110P)	
CN5900	1-785-627-21	PIN, CONNECTOR (PC BOARD) 10P (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
CN5901	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
CN5902	1-778-509-21	PIN, CONNECTOR (PC BOARD) 11P (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
CN5904	1-766-336-21	CONNECTOR, FFC/FPC 6P (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
CN5905	1-764-532-21	CONNECTOR, FFC/FPC (ZIF) 26P (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
< DIODE >			
D5604	8-719-422-23	DIODE MA8047 (TRV310/TRV310P)	
D5604	8-719-976-96	DIODE DTZ4.7C (EXCEPT:TRV310/TRV310P)	
D5605	8-713-102-80	DIODE 1T369-01-T8A	
D5703	8-719-058-86	DIODE PG1101H-TR (TRV103/TRV110/TRV110E/TRV110P)	
△D5704	8-719-073-01	DIODE MA111-(K8).SO	
< IC >			
IC5501	8-759-364-05	IC M62376GP-65AD	
IC5502	8-759-539-27	IC IR3Y37A4	
IC5601	8-759-491-14	IC LZ9GH174 (TRV310E)	
IC5601	8-759-491-15	IC LZ9GH164 (TRV203/TRV210/TRV210E/TRV315)	
IC5601	8-759-495-00	IC LZ9GH184 (TRV103/TRV110/TRV110E/TRV110P)	
IC5601	8-759-530-20	IC CM7017L3-T4 (TRV310/TRV310P)	
IC5602	8-759-327-01	IC NJM062V(Te2)	
IC5701	8-759-075-70	IC TA75S393F-TE85R	
IC5801	8-759-573-02	IC BU9735K-E2 (TRV103/TRV110/TRV110E/TRV110P)	
IC5900	8-759-573-02	IC BU9729K-E2 (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
< COIL >			
L5501	1-414-754-11	INDUCTOR 10uH	
L5502	1-414-754-11	INDUCTOR 10uH	
L5503	1-414-754-11	INDUCTOR 10uH	
L5601	1-414-754-11	INDUCTOR 10uH (TRV310/TRV310P)	
L5603	1-414-754-11	INDUCTOR 10uH	
L5604	1-414-754-11	INDUCTOR 10uH	
L5605	1-412-951-11	INDUCTOR 10uH (TRV310/TRV310E/TRV310P)	
L5605	1-412-953-11	INDUCTOR 15uH (TRV203/TRV210/TRV210E/TRV315)	
L5605	1-412-956-21	INDUCTOR 27uH (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)	
L5605	1-412-952-11	INDUCTOR 12uH (TRV110E:AEP,UK,EE,NE,RU)	
L5701	1-409-536-41	INDUCTOR 150uH	

Ref. No.	Part No.	Description	Remarks
< TRANSISTOR >			
Q5501	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q5601	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q5602	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q5605	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q5606	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q5607	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q5608	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q5701	8-729-039-43	TRANSISTOR FP216-TL	
Q5702	8-729-042-58	TRANSISTOR UN9111J-(K8).SO	
< RESISTOR >			
R5501	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R5505	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R5508	1-218-883-11	RES,CHIP 33K 0.50% 1/16W (EXCEPT:TRV310/TRV310P)	
R5508	1-218-885-11	RES,CHIP 39K 0.50% 1/16W (TRV310/TRV310P)	
R5509	1-218-875-11	RES,CHIP 15K 0.50% 1/16W	
R5512	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R5513	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R5516	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R5517	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R5518	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R5520	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R5521	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R5522	1-216-840-11	METAL CHIP 39K 5% 1/16W (EXCEPT:TRV310/TRV310P)	
R5522	1-216-843-11	METAL CHIP 68K 5% 1/16W (TRV310/TRV310P)	
R5528	1-218-895-11	RES,CHIP 100K 0.50% 1/16W	
R5531	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5532	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R5537	1-216-821-11	METAL CHIP 1K 5% 1/16W (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)	
R5537	1-216-825-11	METAL CHIP 2.2K 5% 1/16W (TRV110E:AEP,UK,EE,NE,RU)	
R5537	1-216-829-11	METAL CHIP 4.7K 5% 1/16W (TRV203/TRV210/TRV210E/TRV315)	
R5537	1-216-830-11	METAL CHIP 5.6K 5% 1/16W (TRV310E)	
R5537	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TRV310/TRV310P)	
R5541	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R5542	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R5544	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5602	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV310/TRV310P)	
R5603	1-216-864-11	METAL CHIP 0 5% 1/16W	
R5604	1-216-864-11	METAL CHIP 0 5% 1/16W	
R5606	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV310/TRV310P)	
R5607	1-216-864-11	METAL CHIP 0 5% 1/16W (EXCEPT:TRV310/TRV310P)	

Note :

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Note :

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R5608	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)	R5651	1-218-883-11	RES,CHIP	33K 0.50% 1/16W (EXCEPT:TRV310/TRV310P)
R5610	1-216-842-11	METAL CHIP	56K 5% 1/16W (TRV310/TRV310P)	R5652	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)
R5610	1-216-845-11	METAL CHIP	100K 5% 1/16W (EXCEPT:TRV310/TRV310P)	R5652	1-218-879-11	RES,CHIP	22K 0.50% 1/16W (EXCEPT:TRV310/TRV310P)
R5612	1-216-833-11	METAL CHIP	10K 5% 1/16W	R5653	1-218-883-11	RES,CHIP	33K 0.50% 1/16W (EXCEPT:TRV310/TRV310P)
R5613	1-216-841-11	METAL CHIP	47K 5% 1/16W	R5654	1-218-879-11	RES,CHIP	22K 0.50% 1/16W (EXCEPT:TRV310/TRV310P)
R5615	1-216-844-11	METAL CHIP	82K 5% 1/16W (TRV310/TRV310P)	R5657	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5615	1-216-846-11	METAL CHIP	120K 5% 1/16W (TRV203/TRV210/TRV210E/TRV315)	R5658	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5615	1-216-847-11	METAL CHIP	150K 5% 1/16W (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)	R5659	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5615	1-216-848-11	METAL CHIP	180K 5% 1/16W (TRV110E:AEP,UK,EE,NE,RU/TRV310E)	R5660	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5617	1-216-833-11	METAL CHIP	10K 5% 1/16W	R5661	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5621	1-216-857-11	METAL CHIP	1M 5% 1/16W (EXCEPT:TRV310/TRV310P)	R5663	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)
R5622	1-216-844-11	METAL CHIP	82K 5% 1/16W (TRV310/TRV310P)	R5664	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)
R5622	1-216-845-11	METAL CHIP	100K 5% 1/16W (EXCEPT:TRV310/TRV310P)	R5665	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)
R5623	1-216-845-11	METAL CHIP	100K 5% 1/16W	R5666	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)
R5624	1-216-841-11	METAL CHIP	47K 5% 1/16W	R5667	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)
R5625	1-218-889-11	RES,CHIP	56K 0.50% 1/16W (TRV310/TRV310P)	R5668	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)
R5625	1-218-891-11	RES,CHIP	68K 0.50% 1/16W (TRV203/TRV210/TRV210E/TRV310E/TRV315)	R5669	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5625	1-218-897-11	RES,CHIP	120K 0.50% 1/16W (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)	R5670	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5625	1-218-895-11	RES,CHIP	100K 0.50% 1/16W (TRV110E:AEP,UK,EE,NE,RU)	R5671	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5627	1-218-893-11	RES,CHIP	82K 0.50% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310P/TRV315)	R5672	1-216-836-11	METAL CHIP	18K 5% 1/16W (TRV310/TRV310P)
R5627	1-218-897-11	RES,CHIP	120K 0.50% 1/16W (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)	R5673	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)
R5627	1-218-901-11	RES,CHIP	180K 0.50% 1/16W (TRV110E:AEP,UK,EE,NE,RU)	R5674	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5627	1-218-903-11	RES,CHIP	220K 0.50% 1/16W (TRV310E)	R5676	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5628	1-216-864-11	METAL CHIP	0 5% 1/16W	R5678	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)
R5630	1-216-821-11	METAL CHIP	1K 5% 1/16W	R5679	1-216-805-11	METAL CHIP	47 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5632	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV110E:AEP,UK,EE,NE,RU/TRV310E)	R5680	1-216-805-11	METAL CHIP	47 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5637	1-216-864-11	METAL CHIP	0 5% 1/16W (EXCEPT:TRV310/TRV310P)	R5681	1-216-805-11	METAL CHIP	47 5% 1/16W (EXCEPT:TRV310/TRV310P)
R5640	1-218-895-11	RES,CHIP	100K 0.50% 1/16W	R5682	1-216-805-11	METAL CHIP	47 5% 1/16W (TRV310/TRV310P)
R5641	1-218-883-11	RES,CHIP	33K 0.50% 1/16W	R5683	1-216-805-11	METAL CHIP	47 5% 1/16W (TRV310/TRV310P)
R5643	1-216-841-11	METAL CHIP	47K 5% 1/16W (TRV310/TRV310P)	R5684	1-216-805-11	METAL CHIP	47 5% 1/16W (TRV310/TRV310P)
R5643	1-216-842-11	METAL CHIP	56K 5% 1/16W (TRV203/TRV210/TRV210E/TRV310E/TRV315)				
R5643	1-216-845-11	METAL CHIP	100K 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)				
R5644	1-216-839-11	METAL CHIP	33K 5% 1/16W				
R5647	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)				
R5648	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV310/TRV310P)				

Ref. No.	Part No.	Description	Remarks
R5685	1-216-841-11	METAL CHIP 47K 5% 1/16W (EXCEPT:TRV310/TRV310P)	
R5685	1-216-842-11	METAL CHIP 56K 5% 1/16W (TRV310/TRV310P)	
R5686	1-216-841-11	METAL CHIP 47K 5% 1/16W (EXCEPT:TRV310/TRV310P)	
R5686	1-216-842-11	METAL CHIP 56K 5% 1/16W (TRV310/TRV310P)	
R5688	1-216-864-11	METAL CHIP 0 5% 1/16W	
R5692	1-216-851-11	METAL CHIP 330K 5% 1/16W (EXCEPT:TRV110E:AEP,UK,EE,NE,RU)	
R5692	1-216-854-11	METAL CHIP 560K 5% 1/16W (TRV110E:AEP,UK,EE,NE,RU)	
R5694	1-216-833-11	METAL CHIP 10K 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
R5694	1-216-839-11	METAL CHIP 33K 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5695	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R5696	1-216-864-11	METAL CHIP 0 5% 1/16W (EXCEPT:TRV310/TRV310P)	
R5697	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV310/TRV310P)	
R5698	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV310/TRV310P)	
R5703	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R5704	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R5705	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R5706	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R5707	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R5708	1-216-810-11	METAL CHIP 120 5% 1/16W	
R5709	1-216-817-11	METAL CHIP 470 5% 1/16W	
R5710	1-216-816-11	METAL CHIP 390 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
R5710	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5801	1-216-823-11	METAL CHIP 1.5K 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5802	1-216-825-11	METAL CHIP 2.2K 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5803	1-216-828-11	METAL CHIP 3.9K 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5804	1-216-832-11	METAL CHIP 8.2K 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5805	1-216-838-11	METAL CHIP 27K 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5806	1-216-822-11	METAL CHIP 1.2K 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5807	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5808	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5811	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5812	1-216-855-11	METAL CHIP 680K 5% 1/16W (TRV103/TRV110/TRV110E/TRV110P)	
R5900	1-216-822-11	METAL CHIP 1.2K 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
R5901	1-216-823-11	METAL CHIP 1.5K 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
R5902	1-216-825-11	METAL CHIP 2.2K 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	

Ref. No.	Part No.	Description	Remarks
R5903	1-216-828-11	METAL CHIP 3.9K 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
R5904	1-216-832-11	METAL CHIP 8.2K 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
R5905	1-216-838-11	METAL CHIP 27K 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
R5906	1-216-855-11	METAL CHIP 680K 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
R5907	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
R5909	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
R5911	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
< SWITCH >			
S5801	1-692-088-41	SWITCH, TACTILE (LCD BRIGHT (+)) (TRV103/TRV110/TRV110E/TRV110P)	
S5802	1-692-088-41	SWITCH, TACTILE (LCD BRIGHT (-)) (TRV103/TRV110/TRV110E/TRV110P)	
S5803	1-692-088-41	SWITCH, TACTILE (VOLUME (+)) (TRV103/TRV110/TRV110E/TRV110P)	
S5804	1-692-088-41	SWITCH, TACTILE (VOLUME (-)) (TRV103/TRV110/TRV110E/TRV110P)	
S5900	1-692-088-41	SWITCH, TACTILE (LCD BRIGHT (+)) (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
S5901	1-692-088-41	SWITCH, TACTILE (LCD BRIGHT (-)) (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
S5902	1-692-088-41	SWITCH, TACTILE (VOLUME (+)) (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
S5903	1-692-088-41	SWITCH, TACTILE (VOLUME (-)) (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
< TRANSFORMER >			
△ T5701	1-431-753-11	TRANSFORMER, INVERTER (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)	
△ T5701	1-433-452-11	TRANSFORMER, INVERTER (TRV103/TRV110/TRV110E/TRV110P)	

A-7073-868-A PJ-95 BOARD, COMPLETE
(TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)

A-7073-919-A PJ-98 BOARD, COMPLETE (TR7000)

A-7073-924-A PJ-96 BOARD, COMPLETE
(TRV203/TRV210/TRV210E:CN/TRV310/
TRV310E:E,HK,AUS,CN,JE/TRV310P/TRV315)

A-7073-941-A PJ-95(IM) BOARD, COMPLETE
(TRV110E:AEP,UK,EE,NE,RU)

(Ref.No.:7000 Series)

A-7073-954-A PJ-96(IM) BOARD, COMPLETE
(TRV210E:AEP,UK/TRV310E:AEP,UK)

(Ref.No.:8000 Series)

A-7073-976-A PJ-98(IM) BOARD, COMPLETE
(TR7000E/TR7100E)

(Ref.No.:9000 Series)

Note :
The components identified by
mark △ or dotted line with mark
△ are critical for safety.
Replace only with part number
specified.

Note :
Les composants identifiés par
une marque △ sont critiques
pour la sécurité.
Ne les remplacer que par une
pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
< CAPACITOR >							
C101	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V		L104	1-216-295-91	SHORT 0 (Note 1) (EXCEPT:TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)	
C103	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		L104	1-412-963-11	INDUCTOR 100uH (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)	
C104	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		L105	1-216-295-91	SHORT 0 (Note 1) (EXCEPT:TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)	
C105	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		L105	1-412-963-11	INDUCTOR 100uH (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)	
C106	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		< TRANSISTOR >			
C107	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		Q101	8-729-101-07	TRANSISTOR 2SB798-T1-DLDK	
C108	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		Q102	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	
C112	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		< RESISTOR >			
C113	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		R101	1-500-283-11	INDUCTOR CHIP 0UH (Note 2)	
< CONNECTOR >				R102	1-216-138-00	METAL CHIP 3.3 5% 1/8W	
CN101	1-785-685-21	CONNECTOR, FFC/FPC (ZIF) 14P		R103	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
< DIODE >				R104	1-216-820-11	METAL CHIP 820 5% 1/16W	
D101	8-719-062-16	DIODE 01ZA8.2(TPL3)		R105	1-216-836-11	METAL CHIP 18K 5% 1/16W	
D102	8-719-062-16	DIODE 01ZA8.2(TPL3)		R106	1-500-283-11	INDUCTOR CHIP 0UH (Note 2)	
D103	8-719-062-16	DIODE 01ZA8.2(TPL3)		R107	1-500-283-11	INDUCTOR CHIP 0UH (Note 2)	
D104	8-719-073-03	DIODE MA8082-(K8).SO		R108	1-216-821-11	METAL CHIP 1K 5% 1/16W	
D105	8-719-062-16	DIODE 01ZA8.2(TPL3)		R109	1-216-821-11	METAL CHIP 1K 5% 1/16W	
D106	8-719-062-16	DIODE 01ZA8.2(TPL3)		R110	1-500-283-11	INDUCTOR CHIP 0UH	
< JACK >				R111	1-414-228-11	INDUCTOR CHIP 0UH (Note 2)	
J101	1-537-747-21	TERMINAL BOARD (S VIDEO/VIDEO/AUDIO)		R112	1-414-228-11	INDUCTOR CHIP 0UH (Note 2)	
< COIL >				R113	1-414-228-11	INDUCTOR CHIP 0UH (Note 2)	
L101	1-414-072-11	INDUCTOR 1uH		R114	1-414-228-11	INDUCTOR CHIP 0UH (Note 2)	
L102	1-216-295-91	SHORT 0 (Note 1) (EXCEPT:TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		R115	1-414-228-11	INDUCTOR CHIP 0UH (Note 2)	
L102	1-412-963-11	INDUCTOR 100uH (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)					
L103	1-216-295-91	SHORT 0 (Note 1) (EXCEPT:TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		A-7073-867-A SE-86 BOARD, COMPLETE (TRV103/TRV110/TRV110E/TRV110P) ***** (Ref.No.:7000 Series)			
L103	1-412-963-11	INDUCTOR 100uH (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP,UK/TR7000E/TR7100E)		A-7073-918-A SE-89 BOARD, COMPLETE (TR7000/TR7000E/TR7100E) ***** (Ref.No.:9000 Series)			
				A-7073-923-A SE-87 BOARD, COMPLETE (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315) ***** (Ref.No.:8000 Series)			
				< CAPACITOR >			
				C601	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
				C602	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
				C603	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
				C604	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
				C607	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	
				C608	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	
				C609	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	
				C610	1-110-666-11	ELECT CHIP 22uF 20% 6.3V	
				C611	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	
				C612	1-110-666-11	ELECT CHIP 22uF 20% 6.3V	

Note 1: Resistors are mounted to the location where L102, L103, L104, L105 are printed.

Note 2: Inductors are mounted to the location where R101, R106, R107, R111-115 are printed.

Ref. No.	Part No.	Description	Remarks			
C614	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V	
C616	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C617	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
< CONNECTOR >						
CN601	1-691-350-21	CONNECTOR, FFC/FPC (ZIF) 12P				
CN602	1-785-828-11	CONNECTOR, SQUARE TYPE 4P				
< IC >						
IC601	8-759-489-19	IC uPC6756GR-8JG-E2				
< COIL >						
L601	1-414-754-11	INDUCTOR	10uH			
< RESISTOR >						
R601	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R602	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R603	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R604	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R605	1-216-864-11	METAL CHIP	0	5%	1/16W	
R606	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R607	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R608	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R609	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R611	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R613	1-216-864-11	METAL CHIP	0	5%	1/16W	
R614	1-216-864-11	METAL CHIP	0	5%	1/16W	
< SENSOR >						
SE651	1-803-042-31	SENSOR, ANGULAR VELOCITY (PITCH)				
SE652	1-803-042-41	SENSOR, ANGULAR VELOCITY (YAW)				
A-7094-280-A		VC-213(N) BOARD, COMPLETE (SERVICE ASSY)(TR7000) *****				
A-7094-281-A		VC-213 (QP) BOARD, COMPLETE (SERVICE ASSY)(TR7000E/TR7100E) *****				
A-7094-282-A		VC-213(VN) BOARD, COMPLETE (SERVICE ASSY)(TRV103/TRV110/TRV110P/TRV203/ TRV210/TRV310/TRV310P/TRV315) *****				
A-7094-283-A		VC-213(VQP) BOARD, COMPLETE (SERVICE ASSY)(TRV110E/TRV210E/TRV310E) ***** (Ref.No.:3000 Series)				
< CAPACITOR >						
C101	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C102	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C103	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	
C104	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C105	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C106	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C107	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C108	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C109	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C111	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	

Ref. No.	Part No.	Description	Remarks			
C112	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C113	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C115	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C116	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C117	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C118	1-164-935-11	CERAMIC CHIP	470PF	10%	16V	
C119	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C120	1-164-866-11	CERAMIC CHIP	47PF	5%	16V	
C121	1-107-820-11	CERAMIC CHIP	0.1uF	10%	16V	
C122	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	
C123	1-164-882-11	CERAMIC CHIP	220PF	5%	16V	
C124	1-164-882-11	CERAMIC CHIP	220PF	5%	16V	
C125	1-164-935-11	CERAMIC CHIP	470PF	10%	16V	
C126	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C127	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C128	1-164-866-11	CERAMIC CHIP	47PF	5%	16V	
C129	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C130	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C131	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C132	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V	
C133	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V	
C135	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C136	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C137	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C138	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C139	1-164-949-11	CERAMIC CHIP	0.047uF		16V	
C141	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C142	1-107-820-11	CERAMIC CHIP	0.1uF		16V	
C143	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C144	1-164-874-11	CERAMIC CHIP	100PF	5%	16V	
C145	1-164-872-11	CERAMIC CHIP	82PF	5%	16V	
C146	1-164-874-11	CERAMIC CHIP	100PF	5%	16V	
C147	1-164-878-11	CERAMIC CHIP	150PF	5%	16V	
C149	1-164-882-11	CERAMIC CHIP	220PF	5%	16V	
C150	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C151	1-164-882-11	CERAMIC CHIP	220PF	5%	16V	
C170	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C172	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V	
C174	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C175	1-164-874-11	CERAMIC CHIP	100PF	5%	16V	
C176	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C177	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C178	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C179	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V	
C180	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C182	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	
C201	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V	
C202	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V	
C203	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C204	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C205	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	
C206	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C207	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V	
C209	1-162-958-11	CERAMIC CHIP	270PF	5%	50V	
C211	1-164-862-11	CERAMIC CHIP	33PF	5%	16V	
C213	1-162-908-11	CERAMIC CHIP	3PF	0.25PF	50V	
C214	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C215	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	
C217	1-162-958-11	CERAMIC CHIP	270PF	5%	50V	
C219	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V	

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
C221	1-164-862-11	CERAMIC CHIP	33PF	5%	16V	C311	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C222	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	C312	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C223	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)					
C224	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C312	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C225	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)					
C227	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C313	1-164-882-11	CERAMIC CHIP	220PF	5%	16V
C228	1-164-876-11	CERAMIC CHIP	120PF	5%	16V	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)					
C229	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V	C314	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C230	1-164-872-11	CERAMIC CHIP	82PF	5%	16V	C315	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C231	1-164-876-11	CERAMIC CHIP	120PF	5%	16V	C316	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C234	1-115-156-11	CERAMIC CHIP	1uF		10V	C317	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C236	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C318	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C252	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C319	1-164-882-11	CERAMIC CHIP	220PF	5%	16V
C253	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C320	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C254	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	C321	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C255	1-107-820-11	CERAMIC CHIP	0.1uF		16V	C322	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C256	1-164-864-11	CERAMIC CHIP	39PF	5%	16V	C323	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C257	1-164-392-11	CERAMIC CHIP	390PF	5%	50V	C351	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C258	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V	C352	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C259	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	C353	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C260	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C354	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C261	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C355	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C262	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C356	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C264	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C357	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C265	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C401	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C266	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C404	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C267	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	C405	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C268	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	C406	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C269	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C407	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C270	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V	C451	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C272	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	C452	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C273	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C453	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C274	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C454	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C276	1-107-820-11	CERAMIC CHIP	0.1uF		16V	C455	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C278	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C456	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C281	1-115-156-11	CERAMIC CHIP	1uF		10V	C457	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C284	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	C458	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C285	1-164-852-11	CERAMIC CHIP	12PF	5%	16V	C459	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C286	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C460	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C287	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C461	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C288	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V	C462	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C289	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C463	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C291	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C464	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C292	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	C465	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C293	1-164-346-11	CERAMIC CHIP	1uF		16V	C466	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C301	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V	C467	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C302	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C468	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C303	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C469	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C304	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C470	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C305	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C471	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C306	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C472	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C307	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C473	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C308	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C474	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C309	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V	C475	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C310	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C476	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
						C477	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
						C479	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
						C480	1-107-820-11	CERAMIC CHIP	0.1uF		16V

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
C481	1-107-820-11	CERAMIC CHIP	0.1uF		16V	C561	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C482	1-164-505-11	CERAMIC CHIP	2.2uF		16V	C563	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C483	1-107-820-11	CERAMIC CHIP	0.1uF		16V	C564	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C484	1-164-882-11	CERAMIC CHIP	220PF	5%	16V	C565	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C485	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C566	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C486	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C567	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C501	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V	C568	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C502	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C569	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C503	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V	C570	1-115-156-11	CERAMIC CHIP	1uF		10V
C504	1-115-156-11	CERAMIC CHIP	1uF		10V	C571	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C505	1-115-156-11	CERAMIC CHIP	1uF		10V	C590	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C506	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V	C591	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C507	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	C592	1-164-876-11	CERAMIC CHIP	120PF	5%	16V
C509	1-115-156-11	CERAMIC CHIP	1uF		10V	C593	1-164-862-11	CERAMIC CHIP	33PF	5%	16V
C510	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C594	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C511	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C601	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C513	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C602	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C514	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C603	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C515	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C604	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C517	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C605	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C518	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C606	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C519	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C607	1-164-862-11	CERAMIC CHIP	33PF	5%	16V
C520	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C608	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C521	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C609	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C522	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C610	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C523	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C611	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C524	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C612	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C525	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C613	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C526	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C614	1-164-854-11	CERAMIC CHIP	15PF	5%	16V
C527	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C615	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C528	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C616	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C529	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C617	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C530	1-125-839-91	TANTAL. CHIP	47uF	20%	6.3V	C618	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C531	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C619	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C532	1-125-777-11	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				C620	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C533	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C621	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C534	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V	C622	1-164-847-11	CERAMIC CHIP	7PF	0.5PF	16V
C535	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	C623	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C536	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C624	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C537	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C625	1-164-862-11	CERAMIC CHIP	33PF	5%	16V
C551	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V	C626	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C552	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C627	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C553	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C628	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C554	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C629	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C555	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C630	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C556	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C631	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C557	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C632	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C558	1-164-935-11	CERAMIC CHIP	470PF	10%	16V	C633	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C559	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	C634	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C560	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C635	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
						C636	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
						C637	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
						C638	1-164-876-11	CERAMIC CHIP	120PF	5%	16V
						C639	1-164-862-11	CERAMIC CHIP	33PF	5%	16V
						C641	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
						C642	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
						C643	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
						C644	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
						C645	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
						C646	1-104-851-11	TANTAL. CHIP	10uF	20%	10V

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C647	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C708	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V
C648	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C709	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C649	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C710	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3
C650	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	C711	1-119-750-11	TANTAL. CHIP	22uF 20% 6.3
C651	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C712	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
						(EXCEPT:TR7000/TR7000E/TR7100E)	
C652	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C713	1-107-686-11	TANTAL. CHIP	4.7uF 20% 16V
C653	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C714	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C654	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V			(EXCEPT:TR7000/TR7000E/TR7100E)	
C655	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C715	1-135-177-21	TANTALUM CHIP	1uF 20% 20V
C656	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V	C716	1-164-874-11	CERAMIC CHIP	100PF 5% 16V
						(EXCEPT:TR7000/TR7000E/TR7100E)	
C657	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V	C717	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C658	1-109-982-11	CERAMIC CHIP	1uF 10% 10V				
C659	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	C718	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V
C660	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	C719	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C661	1-135-181-21	TANTALUM CHIP	4.7uF 20% 6.3V	C720	1-109-982-11	CERAMIC CHIP	1uF 10% 10V
				C721	1-164-874-11	CERAMIC CHIP	100PF 5% 16V
C662	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V			(EXCEPT:TR7000/TR7000E/TR7100E)	
C663	1-135-149-21	TANTALUM CHIP	2.2uF 20% 10V	C722	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V
C664	1-104-851-11	TANTAL. CHIP	10uF 20% 10V				
C665	1-164-668-11	CERAMIC CHIP	510PF 5% 50V	C723	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C666	1-125-899-11	TANTAL. CHIP	220uF 20% 4V	C724	1-109-982-11	CERAMIC CHIP	1uF 10% 10V
				C725	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C667	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V			(EXCEPT:TR7000/TR7000E/TR7100E)	
C668	1-164-864-11	CERAMIC CHIP	39PF 5% 16V	C726	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C669	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V			(EXCEPT:TR7000/TR7000E/TR7100E)	
C670	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	C727	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V
C671	1-164-862-11	CERAMIC CHIP	33PF 5% 16V			(EXCEPT:TR7000/TR7000E/TR7100E)	
C672	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C728	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C673	1-164-844-11	CERAMIC CHIP	4PF 0.25PF 16V	C731	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C674	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V	C732	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C675	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	C733	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C676	1-135-149-21	TANTALUM CHIP	2.2uF 20% 10V	C734	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C677	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C735	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C678	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C736	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C679	1-125-899-11	TANTAL. CHIP	220uF 20% 4V	C737	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C680	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C738	1-164-942-11	CERAMIC CHIP	0.0068uF 10% 16V
		(EXCEPT:TR7000E/TR7100E)		C739	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C681	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V				
				C740	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C682	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	C741	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C684	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C742	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
		(EXCEPT:TR7000E/TR7100E)		C743	1-164-942-11	CERAMIC CHIP	0.0068uF 10% 16V
C685	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C744	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C686	1-104-847-11	TANTAL. CHIP	22uF 20% 4V				
C687	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C745	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
				C746	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C688	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V			(EXCEPT:TR7000/TR7000E/TR7100E)	
C690	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C747	1-109-982-11	CERAMIC CHIP	1uF 10% 10V
C691	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C748	1-109-982-11	CERAMIC CHIP	1uF 10% 10V
C692	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C749	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V
C693	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V				
				C750	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V
C694	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C761	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C695	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C762	1-104-752-11	TANTAL. CHIP	33uF 20% 6.3V
C696	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C763	1-104-847-11	TANTAL. CHIP	22uF 20% 4V
C701	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V	C765	1-109-982-11	CERAMIC CHIP	1uF 10% 10V
C702	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V			(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
C703	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V				
C704	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V				
C705	1-110-569-11	TANTAL. CHIP	47uF 20% 6.3V				
C706	1-110-569-11	TANTAL. CHIP	47uF 20% 6.3V				
C707	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V				

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C766	1-104-847-11	TANTAL. CHIP 22uF 20% 4V		C790	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
C767	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C791	1-164-936-11	CERAMIC CHIP 680PF 10% 16V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
C768	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C791	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
C768	1-218-973-11	RES,CHIP 47K 5% 1/16W (Note)(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C792	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C769	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C793	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C769	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C794	1-164-870-11	CERAMIC CHIP 68PF 5% 16V	
C770	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C801	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
C770	1-218-990-11	SHORT 0 (Note)(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C802	1-135-177-21	TANTALUM CHIP 1uF 20% 20V (EXCEPT:TR7000/TR7000E/TR7100E)	
C771	1-109-982-11	CERAMIC CHIP 1uF 10% 10V		C803	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
C772	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C804	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
C772	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C805	1-119-749-11	TANTAL. CHIP 33uF 20% 4V	
C773	1-109-982-11	CERAMIC CHIP 1uF 10% 10V		C806	1-104-851-11	TANTAL. CHIP 10uF 20% 10V	
C774	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C807	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C775	1-109-982-11	CERAMIC CHIP 1uF 10% 10V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C808	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C775	1-163-021-91	CERAMIC CHIP 0.01uF 10% 50V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C809	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C776	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C810	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C777	1-109-982-11	CERAMIC CHIP 1uF 10% 10V		C811	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C778	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C812	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C778	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C813	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C779	1-109-982-11	CERAMIC CHIP 1uF 10% 10V		C814	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C780	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C815	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C781	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V		C817	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C782	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C818	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C783	1-109-982-11	CERAMIC CHIP 1uF 10% 10V		C819	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
C784	1-109-982-11	CERAMIC CHIP 1uF 10% 10V		C820	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
C785	1-109-982-11	CERAMIC CHIP 1uF 10% 10V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C821	1-107-819-11	CERAMIC CHIP 0.022uF 10% 16V	
C785	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C822	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
C786	1-109-982-11	CERAMIC CHIP 1uF 10% 10V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C823	1-164-858-11	CERAMIC CHIP 22PF 5% 16V	
C786	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C824	1-164-854-11	CERAMIC CHIP 15PF 5% 16V	
C787	1-107-823-11	CERAMIC CHIP 0.47uF 10% 16V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C825	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
C787	1-109-982-11	CERAMIC CHIP 1uF 10% 10V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C826	1-164-942-11	CERAMIC CHIP 0.0068uF 10% 16V	
C788	1-107-823-11	CERAMIC CHIP 0.47uF 10% 16V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C827	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
C788	1-109-982-11	CERAMIC CHIP 1uF 10% 10V (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C901	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	
C789	1-164-940-11	CERAMIC CHIP 0.0033uF 10% 16V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C902	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	
C790	1-162-963-11	CERAMIC CHIP 680PF 10% 50V (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		C903	1-164-850-11	CERAMIC CHIP 10PF 0.5PF 16V	
				C905	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
				C906	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
				C907	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
				C908	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
				C909	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
				C910	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
				C911	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
				C912	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
				C913	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
				C914	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
						< CONNECTOR >	
				CN101	1-766-346-21	CONNECTOR, FFC/FPC 16P	
				CN501	1-779-332-11	CONNECTOR, FFC/FPC 16P	
				CN551	1-573-364-11	CONNECTOR, FFC/FPC 24P	
				CN901	1-766-644-21	CONNECTOR, FFC/FPC 8P	
				CN903	1-766-352-21	CONNECTOR, FFC/FPC 22P	

Note : Resistors are mounted to the location where C768,C770 are printed.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
CN904	1-766-356-21	CONNECTOR, FFC/FPC 26P		FB606	1-500-238-22	FERRITE OUH	
CN905	1-766-646-21	CONNECTOR, FFC/FPC 10P		FB801	1-500-238-22	FERRITE OUH	
CN906	1-766-342-21	CONNECTOR, FFC/FPC 12P		FB901	1-500-238-22	FERRITE OUH	
CN907	1-766-346-21	CONNECTOR, FFC/FPC 16P				< IC >	
CN908	1-766-345-21	CONNECTOR, FFC/FPC 15P					
CN909	1-766-340-21	CONNECTOR, FFC/FPC 10P		IC101	8-759-195-81	IC TC7S86FU(TE85R)	
CN910	1-766-350-21	CONNECTOR, FFC/FPC 20P		IC102	8-752-086-53	IC CXA2072R-T4	
CN911	1-778-637-21	CONNECTOR, FFC/FPC (ZIF) 50P		IC103	8-752-086-52	IC CXA2071R-T4	
CN914	1-774-600-41	CONNECTOR, BOARD TO BOARD 70P (EXCEPT:TR7000/TR7000E/TR7000E)		IC104	8-759-584-35	IC F712504DPM-TEB	
CN914	1-793-128-21	CONNECTOR, BOARD TO BOARD 70P (TR7000/TR7000E/TR7100E)		IC162	8-759-338-95	IC NJM2903V(TE2)	
		< DIODE >		IC201	8-752-075-31	IC CXA2012R-T4	
D251	8-719-055-86	DIODE KV1470TL1-3		IC251	8-759-578-34	IC MB87F4090PFF-G-BND	
D252	8-719-055-86	DIODE KV1470TL1-3		IC253	8-759-447-77	IC TC7WH74FU(TE12R)	
D253	8-713-103-84	DIODE 1T379-01-T8A		IC254	8-759-243-19	IC TC7SU04F(TE85R)	
D301	8-719-055-86	DIODE KV1470TL1-3		IC255	8-759-497-44	IC TC7WH125FU(TE12R)	
D501	8-713-103-84	DIODE 1T379-01-T8A		IC256	8-759-497-44	IC TC7WH125FU(TE12R)	
D551	8-719-073-01	DIODE MA111-(K8).SO		IC291	8-759-169-02	IC MB88344BPFFV-G-BND-ER (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
D601	8-719-071-32	DIODE HVC350BTRF		IC291	8-759-536-93	IC M62371GP-600D (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
D602	8-719-071-32	DIODE HVC350BTRF		IC301	8-759-584-36	IC HG73C050BPTL	
D801	8-719-073-02	DIODE MA728-(K8).SO		IC302	8-752-397-36	IC CXD3129GA-T6	
D802	8-719-073-02	DIODE MA728-(K8).SO		IC303	8-752-397-37	IC CXD3200GA-T6 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
D803	8-719-073-02	DIODE MA728-(K8).SO		IC303	8-759-535-43	IC SN104266GGM-TEB (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
D804	8-719-056-23	DIODE MA2S111-(K8).SO		IC351	8-759-584-66	IC M65511AWG-600D	
D805	8-719-056-23	DIODE MA2S111-(K8).SO		IC352	8-759-583-86	IC MB90097PFV-G-123-BND-ER	
D970	8-719-073-03	DIODE MA8082-(K8).SO		IC401	8-759-576-29	IC MB91191RPFF-G-135-BND-ER	
D971	8-719-062-16	DIODE 01ZA8.2(TPL3)		IC402	8-759-445-94	IC AK6480AM-E2	
D971	8-719-045-87	DIODE MA4Z082WA-(K8).SO		IC451	8-759-327-67	IC LB1950V-TLM	
		< FERRITE BEAD >		IC452	8-759-327-61	IC LB8112V-TLM (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
FB101	1-500-238-22	FERRITE OUH		IC452	8-759-327-62	IC TA8482FN-EL (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
FB102	1-500-238-22	FERRITE OUH		IC453	8-759-338-95	IC NJM2903V(TE2)	
FB252	1-500-238-22	FERRITE OUH		IC501	8-752-386-72	IC CXD2444R-T4	
FB253	1-500-238-22	FERRITE OUH		IC502	8-759-570-81	IC AD9808AJSTR	
FB254	1-500-238-22	FERRITE OUH		IC503	8-752-395-74	IC CXD3145R-T6 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
FB256	1-500-284-21	INDUCTOR CHIP OUH		IC551	8-759-475-79	IC uPD16833AG3-E2 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
FB257	1-500-238-22	FERRITE OUH		IC551	8-759-492-31	IC MPC17A134VMEL (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
FB291	1-500-238-22	FERRITE OUH		IC552	8-759-444-87	IC NJM324V(TE2)	
FB302	1-500-238-22	FERRITE OUH		IC601	8-759-579-81	IC SC371053AFTAEB	
FB303	1-500-238-22	FERRITE OUH		IC641	8-759-576-28	IC NJM2533V(TE2)	
FB304	1-500-238-22	FERRITE OUH		IC642	8-759-576-28	IC NJM2533V(TE2)	
FB401	1-500-238-22	FERRITE OUH		IC643	8-759-534-25	IC AN2222FBQ-EB	
FB501	1-500-238-22	FERRITE OUH		IC644	8-759-498-52	IC LA9511W-TBM	
FB502	1-500-284-21	INDUCTOR CHIP OUH		IC701	8-759-566-17	IC AN2902FHQ-EB	
FB503	1-500-284-21	INDUCTOR CHIP OUH		IC702	8-759-566-19	IC AK4518-VF-E2	
FB504	1-500-238-22	FERRITE OUH		IC760	8-752-089-62	IC CXA2087R-T6 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
FB505	1-500-238-22	FERRITE OUH (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		IC760	8-759-529-58	IC AN2982FH-A-EB (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
FB506	1-500-238-22	FERRITE OUH (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)					
FB507	1-500-284-21	INDUCTOR CHIP OUH (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)					
FB508	1-500-284-21	INDUCTOR CHIP OUH (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)					

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
IC801	8-759-589-54	IC S579604PZ-TEB				< TRANSISTOR >	
IC802	8-759-424-79	IC S-8423YFS-T2		Q101	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
IC803	8-759-536-72	IC TL1596CPWR		Q102	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
IC901	8-759-445-94	IC AK6480AM-E2		Q103	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
IC902	8-759-579-24	IC MB91191RPFF-G-133-BND-ER		Q104	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
				Q105	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
		< COIL >		Q106	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L103	1-414-754-11	INDUCTOR 10uH		Q107	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L104	1-414-754-11	INDUCTOR 10uH		Q108	8-729-047-19	TRANSISTOR 2SA1965-S-TL	
L105	1-414-754-11	INDUCTOR 10uH		Q109	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L106	1-412-066-21	INDUCTOR CHIP 220uH		Q110	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L107	1-412-952-11	INDUCTOR 12uH		Q111	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L162	1-414-754-11	INDUCTOR 10uH		Q112	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L163	1-412-960-21	INDUCTOR 56uH		Q113	8-729-047-19	TRANSISTOR 2SA1965-S-TL	
L201	1-412-066-21	INDUCTOR CHIP 220uH		Q114	8-729-047-19	TRANSISTOR 2SA1965-S-TL	
L202	1-412-957-11	INDUCTOR 33uH		Q115	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L204	1-412-280-31	INDUCTOR 330uH		Q166	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L205	1-410-657-21	INDUCTOR CHIP 180uH		Q167	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L206	1-412-956-21	INDUCTOR 27uH		Q170	8-729-402-81	TRANSISTOR XN4501-TW	
L208	1-412-951-11	INDUCTOR 10uH		Q201	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L209	1-412-279-31	INDUCTOR 270uH		Q202	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L211	1-414-754-11	INDUCTOR 10uH		Q203	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L212	1-414-080-11	INDUCTOR 22uH		Q204	8-729-037-89	TRANSISTOR 2SC4627J-C(K8).SO	
L251	1-414-754-11	INDUCTOR 10uH		Q205	8-729-047-19	TRANSISTOR 2SA1965-S-TL	
L252	1-414-754-11	INDUCTOR 10uH		Q206	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L253	1-414-754-11	INDUCTOR 10uH		Q208	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L254	1-414-754-11	INDUCTOR 10uH		Q209	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L255	1-414-754-11	INDUCTOR 10uH		Q210	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L256	1-412-955-11	INDUCTOR 22uH		Q213	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L257	1-412-945-11	INDUCTOR 3.3uH		Q213	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
L258	1-414-406-11	INDUCTOR 220uH		Q214	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L291	1-414-754-11	INDUCTOR 10uH		Q215	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L301	1-414-245-11	INDUCTOR 1.5uH		Q216	8-729-230-72	TRANSISTOR 2SA1362-YG-EL	
L351	1-414-754-11	INDUCTOR 10uH		Q217	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L352	1-414-755-11	INDUCTOR 22uH		Q217	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
L502	1-414-398-11	INDUCTOR 10uH		Q218	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L503	1-414-754-11	INDUCTOR 10uH	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	Q251	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L551	1-414-754-11	INDUCTOR 10uH		Q252	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L552	1-414-398-11	INDUCTOR 10uH		Q253	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L553	1-414-754-11	INDUCTOR 10uH		Q254	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L601	1-414-754-11	INDUCTOR 10uH		Q255	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L602	1-414-754-11	INDUCTOR 10uH		Q351	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L603	1-412-948-11	INDUCTOR 5.6uH		Q352	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L604	1-412-942-21	INDUCTOR 1.8uH		Q353	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L605	1-412-948-11	INDUCTOR 5.6uH		Q354	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L606	1-412-950-11	INDUCTOR 8.2uH		Q355	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L607	1-412-950-11	INDUCTOR 8.2uH		Q356	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L641	1-414-754-11	INDUCTOR 10uH		Q452	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L642	1-414-754-11	INDUCTOR 10uH		Q453	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
L643	1-412-957-11	INDUCTOR 33uH		Q454	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
L644	1-412-957-11	INDUCTOR 33uH		Q455	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L645	1-412-948-11	INDUCTOR 5.6uH		Q456	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L701	1-414-754-11	INDUCTOR 10uH		Q457	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
L702	1-414-754-11	INDUCTOR 10uH		Q551	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
				Q552	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
				Q553	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
Q554	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)		R113	1-218-990-11	SHORT 0	
Q601	8-729-807-86	TRANSISTOR 2SB1295-UL5-TB		R114	1-218-979-11	RES,CHIP 150K	5% 1/16W
Q602	8-729-037-76	TRANSISTOR UN9215J-(K8).SO		R115	1-218-989-11	RES,CHIP 1M	5% 1/16W
Q603	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R116	1-218-966-11	RES,CHIP 12K	5% 1/16W
Q604	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)		R117	1-218-965-11	RES,CHIP 10K	5% 1/16W
Q605	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R118	1-218-949-11	RES,CHIP 470	5% 1/16W
Q606	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R119	1-218-939-11	RES,CHIP 68	5% 1/16W
Q607	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R120	1-218-966-11	RES,CHIP 12K	5% 1/16W
Q608	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R121	1-218-961-11	RES,CHIP 4.7K	5% 1/16W
Q609	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)		R122	1-218-965-11	RES,CHIP 10K	5% 1/16W
Q610	8-729-807-86	TRANSISTOR 2SB1295-UL5-TB		R123	1-218-990-11	SHORT 0	
Q641	8-729-040-77	TRANSISTOR 2SC5376-B(TE85L) (EXCEPT:TR7000E/TR7100E)		R124	1-218-969-11	RES,CHIP 22K	5% 1/16W
Q642	8-729-037-61	TRANSISTOR RN2104F(TPL3) (EXCEPT:TR7000E/TR7100E)		R125	1-220-195-11	RES,CHIP 11K	5% 1/16W
Q643	8-729-040-77	TRANSISTOR 2SC5376-B(TE85L) (EXCEPT:TR7000E/TR7100E)		R126	1-218-969-11	RES,CHIP 22K	5% 1/16W
Q644	8-729-040-77	TRANSISTOR 2SC5376-B(TE85L) (EXCEPT:TR7000E/TR7100E)		R127	1-208-715-11	RES,CHIP 22K	0.50% 1/16W
Q645	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)		R128	1-218-969-11	RES,CHIP 22K	5% 1/16W
Q646	8-729-122-63	TRANSISTOR 2SA1226-T1E3E4		R129	1-218-969-11	RES,CHIP 22K	5% 1/16W
Q647	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R130	1-218-973-11	RES,CHIP 47K	5% 1/16W
Q701	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R131	1-218-974-11	RES,CHIP 56K	5% 1/16W
Q702	8-729-037-71	TRANSISTOR UN9210J-(K8).SO		R132	1-218-969-11	RES,CHIP 22K	5% 1/16W
Q703	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R133	1-218-971-11	RES,CHIP 33K	5% 1/16W
Q704	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R134	1-218-945-11	RES,CHIP 220	5% 1/16W
Q705	8-729-037-71	TRANSISTOR UN9210J-(K8).SO		R135	1-218-946-11	RES,CHIP 270	5% 1/16W
Q706	8-729-037-61	TRANSISTOR RN2104F(TPL3)		R136	1-218-945-11	RES,CHIP 220	5% 1/16W
Q707	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R137	1-218-945-11	RES,CHIP 220	5% 1/16W
Q708	8-729-037-63	TRANSISTOR UN9115J-(K8).SO		R138	1-218-945-11	RES,CHIP 220	5% 1/16W
Q709	8-729-037-63	TRANSISTOR UN9115J-(K8).SO		R139	1-218-945-11	RES,CHIP 220	5% 1/16W
Q710	8-729-042-29	TRANSISTOR RN1104F(TPL3)		R140	1-218-957-11	RES,CHIP 2.2K	5% 1/16W
Q711	8-729-024-39	TRANSISTOR 2SD1511-R/S(TX)		R141	1-218-961-11	RES,CHIP 4.7K	5% 1/16W
Q801	8-729-042-29	TRANSISTOR RN1104F(TPL3)		R142	1-218-990-11	SHORT 0	
Q802	8-729-042-29	TRANSISTOR RN1104F(TPL3)		R143	1-218-941-11	RES,CHIP 100	5% 1/16W
Q803	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R144	1-218-938-11	RES,CHIP 56	5% 1/16W
Q804	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R145	1-218-950-11	RES,CHIP 560	5% 1/16W
Q805	8-729-041-43	TRANSISTOR HN1L02FU(TE85R)		R146	1-218-960-11	RES,CHIP 3.9K	5% 1/16W
Q806	8-729-042-58	TRANSISTOR UN9111J-(K8).SO		R147	1-218-960-11	RES,CHIP 3.9K	5% 1/16W
Q807	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R148	1-218-965-11	RES,CHIP 10K	5% 1/16W
Q808	8-729-042-29	TRANSISTOR RN1104F(TPL3) (EXCEPT:TR7000/TR7000E/TR7100E)		R149	1-218-965-11	RES,CHIP 10K	5% 1/16W
Q951	8-729-042-29	TRANSISTOR RN1104F(TPL3)		R150	1-218-965-11	RES,CHIP 10K	5% 1/16W
< RESISTOR >				R151	1-218-960-11	RES,CHIP 3.9K	5% 1/16W
R101	1-218-990-11	SHORT 0		R152	1-218-960-11	RES,CHIP 3.9K	5% 1/16W
R102	1-218-931-11	RES,CHIP 15	5% 1/16W	R176	1-218-965-11	RES,CHIP 10K	5% 1/16W
R104	1-218-990-11	SHORT 0		R177	1-218-975-11	RES,CHIP 68K	5% 1/16W
R106	1-218-977-11	RES,CHIP 100K	5% 1/16W	R178	1-218-965-11	RES,CHIP 10K	5% 1/16W
R107	1-218-990-11	SHORT 0		R179	1-218-960-11	RES,CHIP 3.9K	5% 1/16W
R108	1-218-990-11	SHORT 0		R180	1-218-940-11	RES,CHIP 82	5% 1/16W
R109	1-218-990-11	SHORT 0		R181	1-218-948-11	RES,CHIP 390	5% 1/16W
R110	1-218-990-11	SHORT 0		R182	1-218-974-11	RES,CHIP 56K	5% 1/16W
R111	1-218-965-11	RES,CHIP 10K	5% 1/16W	R183	1-218-959-11	RES,CHIP 3.3K	5% 1/16W
R112	1-218-962-11	RES,CHIP 5.6K	5% 1/16W	R184	1-218-975-11	RES,CHIP 68K	5% 1/16W
				R185	1-218-969-11	RES,CHIP 22K	5% 1/16W
				R186	1-218-977-11	RES,CHIP 100K	5% 1/16W
				R187	1-218-977-11	RES,CHIP 100K	5% 1/16W
				R188	1-218-968-11	RES,CHIP 18K	5% 1/16W
				R189	1-218-986-11	RES,CHIP 560K	5% 1/16W
				R190	1-218-981-11	RES,CHIP 220K	5% 1/16W

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
R191	1-218-985-11	RES,CHIP	470K	5%	1/16W	R270	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R192	1-218-965-11	RES,CHIP	10K	5%	1/16W	R272	1-218-989-11	RES,CHIP	1M	5%	1/16W
R195	1-218-969-11	RES,CHIP	22K	5%	1/16W	R274	1-218-967-11	RES,CHIP	15K	5%	1/16W
R201	1-208-677-11	RES,CHIP	560	0.50%	1/16W	R275	1-218-977-11	RES,CHIP	100K	5%	1/16W
R202	1-216-789-11	METAL CHIP	2.2	5%	1/16W	R277	1-218-967-11	RES,CHIP	15K	5%	1/16W
R203	1-218-965-11	RES,CHIP	10K	5%	1/16W	R278	1-218-965-11	RES,CHIP	10K	5%	1/16W
R204	1-218-969-11	RES,CHIP	22K	5%	1/16W	R279	1-218-953-11	RES,CHIP	1K	5%	1/16W
R207	1-218-957-11	RES,CHIP	2.2K	5%	1/16W	R280	1-218-977-11	RES,CHIP	100K	5%	1/16W
R208	1-218-957-11	RES,CHIP	2.2K	5%	1/16W	R281	1-218-977-11	RES,CHIP	100K	5%	1/16W
R209	1-218-949-11	RES,CHIP	470	5%	1/16W	R282	1-218-941-11	RES,CHIP	100	5%	1/16W
R210	1-218-990-11	SHORT 0				R283	1-218-990-11	SHORT 0			
R211	1-218-949-11	RES,CHIP	470	5%	1/16W	R284	1-218-989-11	RES,CHIP	1M	5%	1/16W
R212	1-208-707-11	RES,CHIP	10K	0.50%	1/16W	R285	1-218-985-11	RES,CHIP	470K	5%	1/16W
R214	1-218-948-11	RES,CHIP	390	5%	1/16W	R286	1-218-990-11	SHORT 0			
R215	1-218-947-11	RES,CHIP	330	5%	1/16W	R288	1-218-959-11	RES,CHIP	3.3K	5%	1/16W
R216	1-218-947-11	RES,CHIP	330	5%	1/16W	R289	1-218-946-11	RES,CHIP	270	5%	1/16W
R217	1-218-985-11	RES,CHIP	470K	5%	1/16W	R291	1-218-990-11	SHORT 0			
R219	1-218-945-11	RES,CHIP	220	5%	1/16W	R301	1-218-937-11	RES,CHIP	47	5%	1/16W
R220	1-218-965-11	RES,CHIP	10K	5%	1/16W	R302	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R221	1-218-952-11	RES,CHIP	820	5%	1/16W	R303	1-218-947-11	RES,CHIP	330	5%	1/16W
R222	1-218-953-11	RES,CHIP	1K	5%	1/16W	R304	1-218-965-11	RES,CHIP	10K	5%	1/16W
R226	1-218-985-11	RES,CHIP	470K	5%	1/16W	R305	1-218-965-11	RES,CHIP	10K	5%	1/16W
R227	1-218-947-11	RES,CHIP	330	5%	1/16W	R306	1-218-990-11	SHORT 0			
R228	1-218-965-11	RES,CHIP	10K	5%	1/16W	R307	1-218-947-11	RES,CHIP	330	5%	1/16W
R231	1-218-957-11	RES,CHIP	2.2K	5%	1/16W	R308	1-218-990-11	SHORT 0			
R232	1-218-971-11	RES,CHIP	33K	5%	1/16W	R309	1-218-990-11	SHORT 0			
R233	1-218-953-11	RES,CHIP	1K	5%	1/16W	R310	1-218-990-11	SHORT 0 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R234	1-218-950-11	RES,CHIP	560	5%	1/16W	R311	1-218-990-11	SHORT 0			
R235	1-218-960-11	RES,CHIP	3.9K	5%	1/16W	R312	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R236	1-218-951-11	RES,CHIP	680	5%	1/16W	R313	1-218-990-11	SHORT 0 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R237	1-218-955-11	RES,CHIP	1.5K	5%	1/16W	R314	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R239	1-218-965-11	RES,CHIP	10K	5%	1/16W	R315	1-218-990-11	SHORT 0			
R240	1-218-958-11	RES,CHIP	2.7K	5%	1/16W	R317	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R241	1-218-961-11	RES,CHIP	4.7K	5%	1/16W	R318	1-218-990-11	SHORT 0 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R242	1-218-961-11	RES,CHIP	4.7K	5%	1/16W	R319	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R243	1-218-965-11	RES,CHIP	10K	5%	1/16W	R320	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R251	1-218-965-11	RES,CHIP	10K	5%	1/16W	R321	1-218-990-11	SHORT 0			
R252	1-218-977-11	RES,CHIP	100K	5%	1/16W	R322	1-218-990-11	SHORT 0 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R253	1-218-957-11	RES,CHIP	2.2K	5%	1/16W	R323	1-218-990-11	SHORT 0 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R254	1-218-965-11	RES,CHIP	10K	5%	1/16W	R324	1-218-990-11	SHORT 0 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R255	1-218-954-11	RES,CHIP	1.2K	5%	1/16W	R325	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R256	1-218-955-11	RES,CHIP	1.5K	5%	1/16W	R326	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R257	1-218-962-11	RES,CHIP	5.6K	5%	1/16W	R327	1-218-849-11	RES,CHIP	1.2K	0.50%	1/16W
R258	1-218-953-11	RES,CHIP	1K	5%	1/16W			(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R259	1-218-963-11	RES,CHIP	6.8K	5%	1/16W	R328	1-218-849-11	RES,CHIP	1.2K	0.50%	1/16W
R260	1-218-954-11	RES,CHIP	1.2K	5%	1/16W			(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R261	1-218-943-11	RES,CHIP	150	5%	1/16W	R329	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R262	1-218-949-11	RES,CHIP	470	5%	1/16W						
R263	1-218-941-11	RES,CHIP	100	5%	1/16W						
R264	1-218-943-11	RES,CHIP	150	5%	1/16W						
R265	1-218-972-11	RES,CHIP	39K	5%	1/16W						
R266	1-218-952-11	RES,CHIP	820	5%	1/16W						
R267	1-218-977-11	RES,CHIP	100K	5%	1/16W						
R268	1-218-959-11	RES,CHIP	3.3K	5%	1/16W						
R269	1-216-825-11	METAL CHIP	2.2K	5%	1/16W						

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R330	1-208-709-11	RES,CHIP 12K 0.50% 1/16W (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		R416	1-218-953-11	RES,CHIP 1K 5% 1/16W	
R331	1-208-703-11	RES,CHIP 6.8K 0.50% 1/16W (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		R417	1-218-961-11	RES,CHIP 4.7K 5% 1/16W	
R331	1-218-990-11	SHORT 0 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		R418	1-218-990-11	SHORT 0	
R332	1-218-990-11	SHORT 0 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		R419	1-218-977-11	RES,CHIP 100K 5% 1/16W	
R333	1-208-709-11	RES,CHIP 12K 0.50% 1/16W (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		R422	1-218-990-11	SHORT 0	
R333	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		R423	1-218-990-11	SHORT 0	
R334	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		R424	1-218-965-11	RES,CHIP 10K 5% 1/16W	
R335	1-218-990-11	SHORT 0 (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		R425	1-218-965-11	RES,CHIP 10K 5% 1/16W	
R336	1-218-938-11	RES,CHIP 56 5% 1/16W		R426	1-218-977-11	RES,CHIP 100K 5% 1/16W	
R337	1-218-938-11	RES,CHIP 56 5% 1/16W		R427	1-218-977-11	RES,CHIP 100K 5% 1/16W	
R338	1-218-965-11	RES,CHIP 10K 5% 1/16W		R428	1-218-985-11	RES,CHIP 470K 5% 1/16W	
R339	1-218-938-11	RES,CHIP 56 5% 1/16W		R429	1-218-977-11	RES,CHIP 100K 5% 1/16W	
R340	1-218-965-11	RES,CHIP 10K 5% 1/16W		R430	1-218-943-11	RES,CHIP 150 5% 1/16W	
R341	1-218-938-11	RES,CHIP 56 5% 1/16W		R431	1-218-945-11	RES,CHIP 220 5% 1/16W	
R342	1-218-990-11	SHORT 0		R432	1-218-943-11	RES,CHIP 150 5% 1/16W	
R343	1-216-864-11	METAL CHIP 0 5% 1/16W		R433	1-218-945-11	RES,CHIP 220 5% 1/16W	
R352	1-218-990-11	SHORT 0		R441	1-218-967-11	RES,CHIP 15K 5% 1/16W (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
R354	1-218-990-11	SHORT 0		R441	1-218-973-11	RES,CHIP 47K 5% 1/16W (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
R357	1-218-990-11	SHORT 0		R442	1-218-990-11	SHORT 0	
R358	1-218-990-11	SHORT 0		R443	1-218-871-11	RES,CHIP 10K 0.50% 1/16W	
R359	1-218-990-11	SHORT 0		R444	1-218-990-11	SHORT 0	
R360	1-218-955-11	RES,CHIP 1.5K 5% 1/16W		R451	1-217-671-11	METAL CHIP 1 5% 1/10W	
R361	1-218-959-11	RES,CHIP 3.3K 5% 1/16W		R452	1-217-671-11	METAL CHIP 1 5% 1/10W	
R362	1-218-959-11	RES,CHIP 3.3K 5% 1/16W		R453	1-217-671-11	METAL CHIP 1 5% 1/10W	
R363	1-218-949-11	RES,CHIP 470 5% 1/16W		R454	1-218-965-11	RES,CHIP 10K 5% 1/16W	
R364	1-218-949-11	RES,CHIP 470 5% 1/16W		R455	1-218-965-11	RES,CHIP 10K 5% 1/16W	
R365	1-218-951-11	RES,CHIP 680 5% 1/16W		R456	1-218-965-11	RES,CHIP 10K 5% 1/16W	
R366	1-218-952-11	RES,CHIP 820 5% 1/16W		R457	1-218-990-11	SHORT 0	
R367	1-218-951-11	RES,CHIP 680 5% 1/16W		R458	1-218-985-11	RES,CHIP 470K 5% 1/16W	
R368	1-218-947-11	RES,CHIP 330 5% 1/16W		R459	1-218-985-11	RES,CHIP 470K 5% 1/16W	
R369	1-218-961-11	RES,CHIP 4.7K 5% 1/16W		R460	1-218-985-11	RES,CHIP 470K 5% 1/16W	
R370	1-218-961-11	RES,CHIP 4.7K 5% 1/16W		R461	1-218-983-11	RES,CHIP 330K 5% 1/16W	
R371	1-218-961-11	RES,CHIP 4.7K 5% 1/16W		R462	1-218-977-11	RES,CHIP 100K 5% 1/16W	
R372	1-218-953-11	RES,CHIP 1K 5% 1/16W		R463	1-218-973-11	RES,CHIP 47K 5% 1/16W	
R373	1-218-957-11	RES,CHIP 2.2K 5% 1/16W		R464	1-218-965-11	RES,CHIP 10K 5% 1/16W	
R374	1-218-957-11	RES,CHIP 2.2K 5% 1/16W		R465	1-218-965-11	RES,CHIP 10K 5% 1/16W	
R375	1-218-965-11	RES,CHIP 10K 5% 1/16W		R466	1-218-973-11	RES,CHIP 47K 5% 1/16W	
R376	1-218-953-11	RES,CHIP 1K 5% 1/16W		R467	1-218-961-11	RES,CHIP 4.7K 5% 1/16W	
R401	1-218-985-11	RES,CHIP 470K 5% 1/16W		R468	1-218-965-11	RES,CHIP 10K 5% 1/16W	
R402	1-218-985-11	RES,CHIP 470K 5% 1/16W		R470	1-218-973-11	RES,CHIP 47K 5% 1/16W	
R403	1-218-977-11	RES,CHIP 100K 5% 1/16W		R471	1-218-946-11	RES,CHIP 270 5% 1/16W	
R404	1-218-977-11	RES,CHIP 100K 5% 1/16W		R472	1-218-968-11	RES,CHIP 18K 5% 1/16W	
R405	1-218-977-11	RES,CHIP 100K 5% 1/16W		R473	1-218-949-11	RES,CHIP 470 5% 1/16W	
R406	1-218-977-11	RES,CHIP 100K 5% 1/16W		R474	1-218-964-11	RES,CHIP 8.2K 5% 1/16W (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
R407	1-218-953-11	RES,CHIP 1K 5% 1/16W		R474	1-218-966-11	RES,CHIP 12K 5% 1/16W (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
R408	1-218-953-11	RES,CHIP 1K 5% 1/16W		R475	1-218-968-11	RES,CHIP 18K 5% 1/16W	
R409	1-218-990-11	SHORT 0		R476	1-217-671-11	METAL CHIP 1 5% 1/10W	
R411	1-218-990-11	SHORT 0		R477	1-217-671-11	METAL CHIP 1 5% 1/10W	
R413	1-218-985-11	RES,CHIP 470K 5% 1/16W		R478	1-218-977-11	RES,CHIP 100K 5% 1/16W	
R414	1-218-971-11	RES,CHIP 33K 5% 1/16W		R479	1-218-959-11	RES,CHIP 3.3K 5% 1/16W	
				R480	1-218-961-11	RES,CHIP 4.7K 5% 1/16W	
				R481	1-216-023-00	METAL CHIP 82 5% 1/10W	
				R482	1-218-965-11	RES,CHIP 10K 5% 1/16W	
				R483	1-218-977-11	RES,CHIP 100K 5% 1/16W	
				R484	1-218-961-11	RES,CHIP 4.7K 5% 1/16W	

Ref. No.	Part No.	Description	Remarks		
R485	1-218-965-11	RES,CHIP	10K	5%	1/16W
R486	1-218-965-11	RES,CHIP	10K	5%	1/16W
R487	1-218-981-11	RES,CHIP	220K	5%	1/16W
R488	1-218-981-11	RES,CHIP	220K	5%	1/16W
R489	1-218-965-11	RES,CHIP	10K	5%	1/16W
R490	1-218-965-11	RES,CHIP	10K	5%	1/16W
R492	1-218-965-11	RES,CHIP	10K	5%	1/16W
R493	1-218-977-11	RES,CHIP	100K	5%	1/16W
R494	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R497	1-218-977-11	RES,CHIP	100K	5%	1/16W
R498	1-218-990-11	SHORT	0		
R499	1-218-990-11	SHORT	0		
R501	1-216-864-11	METAL CHIP	0	5%	1/16W
R502	1-216-864-11	METAL CHIP	0	5%	1/16W
R503	1-218-977-11	RES,CHIP	100K	5%	1/16W
R504	1-218-990-11	SHORT	0		
R505	1-218-941-11	RES,CHIP	100	5%	1/16W
R506	1-218-941-11	RES,CHIP	100	5%	1/16W
R507	1-218-989-11	RES,CHIP	1M	5%	1/16W
R509	1-218-990-11	SHORT	0		
R511	1-218-990-11	SHORT	0		
R512	1-218-985-11	RES,CHIP	470K	5%	1/16W
R513	1-218-990-11	SHORT	0		
R514	1-218-990-11	SHORT	0		
R515	1-218-990-11	SHORT	0		
R519	1-216-864-11	METAL CHIP	0	5%	1/16W
R520	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R521	1-218-990-11	SHORT	0		
R523	1-218-933-11	RES,CHIP	22	5%	1/16W
	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R525	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R526	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R530	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R531	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R532	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R533	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R534	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R535	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R536	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R537	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R538	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R539	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R540	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R541	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R542	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R543	1-218-990-11	SHORT	0		
	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				

Ref. No.	Part No.	Description	Remarks		
R544	1-218-990-11	SHORT	0		
R546	1-218-990-11	SHORT	0		
	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R547	1-218-941-11	RES,CHIP	100	5%	1/16W
	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R548	1-218-941-11	RES,CHIP	100	5%	1/16W
	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)				
R549	1-216-864-11	METAL CHIP	0	5%	1/16W
R552	1-216-295-91	SHORT	0		
R553	1-218-953-11	RES,CHIP	1K	5%	1/16W
R554	1-218-929-11	RES,CHIP	10	5%	1/16W
R555	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R556	1-218-965-11	RES,CHIP	10K	5%	1/16W
R557	1-218-981-11	RES,CHIP	220K	5%	1/16W
R558	1-218-985-11	RES,CHIP	470K	5%	1/16W
R559	1-218-985-11	RES,CHIP	470K	5%	1/16W
R560	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R561	1-218-967-11	RES,CHIP	15K	5%	1/16W
R562	1-218-985-11	RES,CHIP	470K	5%	1/16W
R563	1-218-953-11	RES,CHIP	1K	5%	1/16W
R564	1-218-953-11	RES,CHIP	1K	5%	1/16W
R565	1-218-947-11	RES,CHIP	330	5%	1/16W
R566	1-218-953-11	RES,CHIP	1K	5%	1/16W
R567	1-218-989-11	RES,CHIP	1M	5%	1/16W
R568	1-218-965-11	RES,CHIP	10K	5%	1/16W
R569	1-218-969-11	RES,CHIP	22K	5%	1/16W
R570	1-218-969-11	RES,CHIP	22K	5%	1/16W
R571	1-218-973-11	RES,CHIP	47K	5%	1/16W
R572	1-218-975-11	RES,CHIP	68K	5%	1/16W
R573	1-218-975-11	RES,CHIP	68K	5%	1/16W
R574	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R575	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R576	1-218-973-11	RES,CHIP	47K	5%	1/16W
R577	1-218-953-11	RES,CHIP	1K	5%	1/16W
R601	1-218-973-11	RES,CHIP	47K	5%	1/16W
R602	1-218-965-11	RES,CHIP	10K	5%	1/16W
R603	1-218-953-11	RES,CHIP	1K	5%	1/16W
R604	1-218-959-11	RES,CHIP	3.3K	5%	1/16W
R605	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R607	1-218-979-11	RES,CHIP	150K	5%	1/16W
R608	1-218-959-11	RES,CHIP	3.3K	5%	1/16W
R609	1-218-965-11	RES,CHIP	10K	5%	1/16W
R610	1-218-953-11	RES,CHIP	1K	5%	1/16W
R611	1-218-941-11	RES,CHIP	100	5%	1/16W
R612	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R613	1-218-977-11	RES,CHIP	100K	5%	1/16W
R614	1-218-989-11	RES,CHIP	1M	5%	1/16W
R615	1-218-977-11	RES,CHIP	100K	5%	1/16W
R616	1-218-977-11	RES,CHIP	100K	5%	1/16W
R617	1-218-965-11	RES,CHIP	10K	5%	1/16W
R618	1-218-965-11	RES,CHIP	10K	5%	1/16W
R619	1-218-977-11	RES,CHIP	100K	5%	1/16W
R620	1-218-950-11	RES,CHIP	560	5%	1/16W
R621	1-218-990-11	SHORT	0		
R623	1-218-952-11	RES,CHIP	820	5%	1/16W
R624	1-218-965-11	RES,CHIP	10K	5%	1/16W
R625	1-218-944-11	RES,CHIP	180	5%	1/16W
R626	1-218-944-11	RES,CHIP	180	5%	1/16W

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R641	1-218-973-11	RES,CHIP	47K 5% 1/16W	R711	1-218-935-11	RES,CHIP	33 5% 1/16W
R642	1-218-973-11	RES,CHIP	47K 5% 1/16W	R712	1-218-957-11	RES,CHIP	2.2K 5% 1/16W
R643	1-218-969-11	RES,CHIP	22K 5% 1/16W	R713	1-218-953-11	RES,CHIP	1K 5% 1/16W
R644	1-218-961-11	RES,CHIP	4.7K 5% 1/16W	R714	1-218-965-11	RES,CHIP	10K 5% 1/16W
R645	1-218-961-11	RES,CHIP	4.7K 5% 1/16W	R715	1-218-965-11	RES,CHIP	10K 5% 1/16W
R646	1-218-965-11	RES,CHIP	10K 5% 1/16W	R716	1-218-953-11	RES,CHIP	1K 5% 1/16W
R647	1-218-967-11	RES,CHIP	15K 5% 1/16W	R717	1-218-973-11	RES,CHIP	47K 5% 1/16W
R648	1-218-965-11	RES,CHIP	10K 5% 1/16W	R718	1-218-973-11	RES,CHIP	47K 5% 1/16W
R650	1-218-989-11	RES,CHIP	1M 5% 1/16W	R719	1-218-965-11	RES,CHIP	10K 5% 1/16W
R651	1-218-969-11	RES,CHIP	22K 5% 1/16W	R720	1-218-965-11	RES,CHIP	10K 5% 1/16W
R652	1-218-953-11	RES,CHIP	1K 5% 1/16W	R721	1-218-973-11	RES,CHIP	47K 5% 1/16W
R653	1-208-715-11	RES,CHIP	22K 0.50% 1/16W	R722	1-218-953-11	RES,CHIP	1K 5% 1/16W
R654	1-218-947-11	RES,CHIP	330 5% 1/16W	(EXCEPT:TR7000/TR7000E/TR7100E)			
R655	1-218-953-11	RES,CHIP	1K 5% 1/16W	R724	1-218-953-11	RES,CHIP	1K 5% 1/16W
R656	1-218-953-11	RES,CHIP	1K 5% 1/16W	(EXCEPT:TR7000/TR7000E/TR7100E)			
R657	1-218-949-11	RES,CHIP	470 5% 1/16W	R725	1-218-969-11	RES,CHIP	22K 5% 1/16W
R659	1-218-965-11	RES,CHIP	10K 5% 1/16W	(EXCEPT:TR7000/TR7000E/TR7100E)			
R660	1-218-979-11	RES,CHIP	150K 5% 1/16W	R726	1-218-969-11	RES,CHIP	22K 5% 1/16W
R661	1-218-979-11	RES,CHIP	150K 5% 1/16W	(EXCEPT:TR7000/TR7000E/TR7100E)			
R662	1-218-969-11	RES,CHIP	22K 5% 1/16W	R727	1-218-953-11	RES,CHIP	1K 5% 1/16W
R663	1-218-953-11	RES,CHIP	1K 5% 1/16W	(EXCEPT:TR7000/TR7000E/TR7100E)			
R664	1-218-950-11	RES,CHIP	560 5% 1/16W	R728	1-218-949-11	RES,CHIP	470 5% 1/16W
R665	1-218-963-11	RES,CHIP	6.8K 5% 1/16W	R729	1-218-949-11	RES,CHIP	470 5% 1/16W
R666	1-218-953-11	RES,CHIP	1K 5% 1/16W	R731	1-218-949-11	RES,CHIP	470 5% 1/16W
R667	1-218-965-11	RES,CHIP	10K 5% 1/16W	R732	1-218-949-11	RES,CHIP	470 5% 1/16W
R668	1-218-949-11	RES,CHIP	470 5% 1/16W	R734	1-218-971-11	RES,CHIP	33K 5% 1/16W
R669	1-218-972-11	RES,CHIP	39K 5% 1/16W	R735	1-218-960-11	RES,CHIP	3.9K 5% 1/16W
R670	1-218-965-11	RES,CHIP	10K 5% 1/16W	R760	1-218-990-11	SHORT 0	
R671	1-218-949-11	RES,CHIP	470 5% 1/16W	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R672	1-218-965-11	RES,CHIP	10K 5% 1/16W	R762	1-218-990-11	SHORT 0	
R673	1-218-955-11	RES,CHIP	1.5K 5% 1/16W	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R674	1-218-935-11	RES,CHIP	33 5% 1/16W	R763	1-218-977-11	RES,CHIP	100K 5% 1/16W
R675	1-218-935-11	RES,CHIP	33 5% 1/16W	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R676	1-218-935-11	RES,CHIP	33 5% 1/16W	R764	1-218-985-11	RES,CHIP	470K 5% 1/16W
R677	1-218-935-11	RES,CHIP	33 5% 1/16W	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R678	1-218-935-11	RES,CHIP	33 5% 1/16W	R765	1-218-990-11	SHORT 0	
R679	1-218-935-11	RES,CHIP	33 5% 1/16W	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R680	1-218-949-11	RES,CHIP	470 5% 1/16W	R766	1-218-977-11	RES,CHIP	100K 5% 1/16W
R681	1-218-981-11	RES,CHIP	220K 5% 1/16W	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R682	1-218-941-11	RES,CHIP	100 5% 1/16W	R766	1-218-978-11	RES,CHIP	120K 5% 1/16W
R684	1-218-961-11	RES,CHIP	4.7K 5% 1/16W	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R685	1-218-961-11	RES,CHIP	4.7K 5% 1/16W	R767	1-218-977-11	RES,CHIP	100K 5% 1/16W
R686	1-218-989-11	RES,CHIP	1M 5% 1/16W	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R687	1-218-937-11	RES,CHIP	47 5% 1/16W	R767	1-218-978-11	RES,CHIP	120K 5% 1/16W
R689	1-218-990-11	SHORT 0		(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R701	1-218-957-11	RES,CHIP	2.2K 5% 1/16W	R768	1-208-715-11	RES,CHIP	22K 0.50% 1/16W
R702	1-218-969-11	RES,CHIP	22K 5% 1/16W	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R703	1-218-969-11	RES,CHIP	22K 5% 1/16W	R769	1-208-935-11	RES,CHIP	100K 0.50% 1/16W
R704	1-218-957-11	RES,CHIP	2.2K 5% 1/16W	(TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R705	1-218-973-11	RES,CHIP	47K 5% 1/16W	R769	1-208-947-11	RES,CHIP	330K 0.50% 1/16W
R706	1-218-936-11	RES,CHIP	39 5% 1/16W	(EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			
R707	1-218-935-11	RES,CHIP	33 5% 1/16W	R770	1-218-952-11	RES,CHIP	820 5% 1/16W
R708	1-218-973-11	RES,CHIP	47K 5% 1/16W	R801	1-218-985-11	RES,CHIP	470K 5% 1/16W
R709	1-218-957-11	RES,CHIP	2.2K 5% 1/16W	R802	1-218-953-11	RES,CHIP	1K 5% 1/16W
R710	1-218-936-11	RES,CHIP	39 5% 1/16W	R804	1-218-953-11	RES,CHIP	1K 5% 1/16W
				(EXCEPT:TR7000/TR7000E/TR7100E)			

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
R805	1-218-953-11	RES,CHIP	1K	5%	1/16W	R862	1-218-989-11	RES,CHIP	1M	5%	1/16W
		(EXCEPT:TR7000/TR7000E/TR7100E)				R863	1-218-989-11	RES,CHIP	1M	5%	1/16W
R806	1-218-957-11	RES,CHIP	2.2K	5%	1/16W	R864	1-218-953-11	RES,CHIP	1K	5%	1/16W
R807	1-218-959-11	RES,CHIP	3.3K	5%	1/16W	R865	1-218-953-11	RES,CHIP	1K	5%	1/16W
		(TR7000/TR7000E/TR7100E)				R866	1-218-973-11	RES,CHIP	47K	5%	1/16W
R808	1-218-945-11	RES,CHIP	220	5%	1/16W	R867	1-218-985-11	RES,CHIP	470K	5%	1/16W
R809	1-218-977-11	RES,CHIP	100K	5%	1/16W	R868	1-218-985-11	RES,CHIP	470K	5%	1/16W
R810	1-218-961-11	RES,CHIP	4.7K	5%	1/16W	R869	1-218-985-11	RES,CHIP	470K	5%	1/16W
R811	1-218-973-11	RES,CHIP	47K	5%	1/16W	R870	1-218-985-11	RES,CHIP	470K	5%	1/16W
		(EXCEPT:TR7000/TR7000E/TR7100E)				R871	1-218-985-11	RES,CHIP	470K	5%	1/16W
R812	1-218-977-11	RES,CHIP	100K	5%	1/16W	R872	1-218-989-11	RES,CHIP	1M	5%	1/16W
R813	1-218-985-11	RES,CHIP	470K	5%	1/16W	R873	1-218-953-11	RES,CHIP	1K	5%	1/16W
R814	1-218-985-11	RES,CHIP	470K	5%	1/16W	R874	1-218-953-11	RES,CHIP	1K	5%	1/16W
R815	1-218-985-11	RES,CHIP	470K	5%	1/16W	R875	1-218-953-11	RES,CHIP	1K	5%	1/16W
R816	1-218-985-11	RES,CHIP	470K	5%	1/16W	R876	1-219-570-11	RES,CHIP	10M	5%	1/16W
R817	1-218-985-11	RES,CHIP	470K	5%	1/16W	R877	1-218-985-11	RES,CHIP	470K	5%	1/16W
R818	1-218-985-11	RES,CHIP	470K	5%	1/16W	R878	1-218-985-11	RES,CHIP	470K	5%	1/16W
R819	1-218-985-11	RES,CHIP	470K	5%	1/16W	R879	1-218-977-11	RES,CHIP	100K	5%	1/16W
R820	1-218-973-11	RES,CHIP	47K	5%	1/16W	R880	1-218-977-11	RES,CHIP	100K	5%	1/16W
R821	1-218-977-11	RES,CHIP	100K	5%	1/16W	R881	1-218-977-11	RES,CHIP	100K	5%	1/16W
R822	1-218-985-11	RES,CHIP	470K	5%	1/16W	R882	1-218-985-11	RES,CHIP	470K	5%	1/16W
R823	1-218-965-11	RES,CHIP	10K	5%	1/16W	R883	1-218-949-11	RES,CHIP	470	5%	1/16W
R824	1-218-958-11	RES,CHIP	2.7K	5%	1/16W	R884	1-218-953-11	RES,CHIP	1K	5%	1/16W
R825	1-218-953-11	RES,CHIP	1K	5%	1/16W			(EXCEPT:TR7000/TR7000E/TR7100E)			
R826	1-218-953-11	RES,CHIP	1K	5%	1/16W	R885	1-218-953-11	RES,CHIP	1K	5%	1/16W
R827	1-218-953-11	RES,CHIP	1K	5%	1/16W			(EXCEPT:TR7000/TR7000E/TR7100E)			
R828	1-218-953-11	RES,CHIP	1K	5%	1/16W	R886	1-218-953-11	RES,CHIP	1K	5%	1/16W
R829	1-218-953-11	RES,CHIP	1K	5%	1/16W			(EXCEPT:TR7000/TR7000E/TR7100E)			
R830	1-218-953-11	RES,CHIP	1K	5%	1/16W	R887	1-218-953-11	RES,CHIP	1K	5%	1/16W
R831	1-218-953-11	RES,CHIP	1K	5%	1/16W	R888	1-218-985-11	RES,CHIP	470K	5%	1/16W
R832	1-218-985-11	RES,CHIP	470K	5%	1/16W	R889	1-218-953-11	RES,CHIP	1K	5%	1/16W
R833	1-218-989-11	RES,CHIP	1M	5%	1/16W	R890	1-218-985-11	RES,CHIP	470K	5%	1/16W
R834	1-208-943-11	RES,CHIP	220K	0.50%	1/16W	R891	1-218-985-11	RES,CHIP	470K	5%	1/16W
R835	1-208-943-11	RES,CHIP	220K	0.50%	1/16W	R893	1-218-953-11	RES,CHIP	1K	5%	1/16W
R836	1-218-985-11	RES,CHIP	470K	0.50%	1/16W	R894	1-218-953-11	RES,CHIP	1K	5%	1/16W
R837	1-218-985-11	RES,CHIP	470K	0.50%	1/16W			(EXCEPT:TR7000/TR7000E/TR7100E)			
R838	1-218-977-11	RES,CHIP	100K	5%	1/16W	R895	1-218-977-11	RES,CHIP	100K	5%	1/16W
R839	1-218-977-11	RES,CHIP	100K	5%	1/16W	R896	1-218-941-11	RES,CHIP	100	5%	1/16W
R840	1-218-977-11	RES,CHIP	100K	5%	1/16W	R901	1-218-953-11	RES,CHIP	1K	5%	1/16W
R843	1-218-953-11	RES,CHIP	1K	5%	1/16W	R902	1-218-977-11	RES,CHIP	100K	5%	1/16W
R844	1-218-953-11	RES,CHIP	1K	5%	1/16W	R903	1-218-977-11	RES,CHIP	100K	5%	1/16W
R845	1-218-953-11	RES,CHIP	1K	5%	1/16W	R904	1-218-977-11	RES,CHIP	100K	5%	1/16W
R846	1-218-953-11	RES,CHIP	1K	5%	1/16W	R905	1-218-977-11	RES,CHIP	100K	5%	1/16W
R847	1-218-953-11	RES,CHIP	1K	5%	1/16W	R906	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R848	1-218-977-11	RES,CHIP	100K	5%	1/16W	R907	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R849	1-218-953-11	RES,CHIP	1K	5%	1/16W	R908	1-218-969-11	RES,CHIP	22K	5%	1/16W
R850	1-218-953-11	RES,CHIP	1K	5%	1/16W	R909	1-218-969-11	RES,CHIP	22K	5%	1/16W
R851	1-218-953-11	RES,CHIP	1K	5%	1/16W	R910	1-218-977-11	RES,CHIP	100K	5%	1/16W
R852	1-218-989-11	RES,CHIP	1M	5%	1/16W	R911	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R853	1-218-989-11	RES,CHIP	1M	5%	1/16W	R912	1-218-965-11	RES,CHIP	10K	5%	1/16W
R854	1-218-989-11	RES,CHIP	1M	5%	1/16W	R913	1-218-965-11	RES,CHIP	10K	5%	1/16W
R855	1-218-989-11	RES,CHIP	1M	5%	1/16W	R914	1-218-977-11	RES,CHIP	100K	5%	1/16W
R856	1-218-989-11	RES,CHIP	1M	5%	1/16W	R915	1-218-973-11	RES,CHIP	47K	5%	1/16W
R857	1-218-989-11	RES,CHIP	1M	5%	1/16W	R916	1-218-977-11	RES,CHIP	100K	5%	1/16W
R858	1-218-989-11	RES,CHIP	1M	5%	1/16W	R917	1-218-977-11	RES,CHIP	100K	5%	1/16W
R859	1-218-953-11	RES,CHIP	1K	5%	1/16W	R918	1-218-985-11	RES,CHIP	470K	5%	1/16W
R860	1-218-989-11	RES,CHIP	1M	5%	1/16W	R919	1-218-985-11	RES,CHIP	470K	5%	1/16W
R861	1-218-953-11	RES,CHIP	1K	5%	1/16W	R920	1-218-973-11	RES,CHIP	47K	5%	1/16W
						R921	1-218-973-11	RES,CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description	Remarks
R922	1-218-973-11	RES,CHIP 47K 5%	1/16W
R923	1-218-943-11	RES,CHIP 150 5%	1/16W
R924	1-218-945-11	RES,CHIP 220 5%	1/16W
R930	1-218-990-11	SHORT 0	
R931	1-218-977-11	RES,CHIP 100K 5%	1/16W
R932	1-218-977-11	RES,CHIP 100K 5%	1/16W
R933	1-218-977-11	RES,CHIP 100K 5%	1/16W
R934	1-218-977-11	RES,CHIP 100K 5%	1/16W
R935	1-218-990-11	SHORT 0	
R951	1-218-990-11	SHORT 0	
R952	1-218-990-11	SHORT 0	
R953	1-218-990-11	SHORT 0	
R954	1-218-990-11	SHORT 0	
R955	1-218-990-11	SHORT 0	
R956	1-218-990-11	SHORT 0	
R957	1-218-990-11	SHORT 0	
R958	1-218-990-11	SHORT 0	
R959	1-218-990-11	SHORT 0	
R960	1-218-990-11	SHORT 0	
R961	1-218-990-11	SHORT 0	
R962	1-218-990-11	SHORT 0	
R963	1-218-990-11	SHORT 0	
R964	1-218-990-11	SHORT 0	
R965	1-218-990-11	SHORT 0	
R966	1-218-990-11	SHORT 0	
R967	1-218-990-11	SHORT 0	
R968	1-218-990-11	SHORT 0	
R969	1-218-990-11	SHORT 0	
R970	1-218-990-11	SHORT 0	
R972	1-218-990-11	SHORT 0	(EXCEPT:TR7000/TR7000E/TR7100E)
R973	1-218-990-11	SHORT 0	(TR7000/TR7000E/TR7100E)
R974	1-218-953-11	RES,CHIP 1K 5%	1/16W
R975	1-218-965-11	RES,CHIP 10K 5%	1/16W
R976	1-218-977-11	RES,CHIP 100K 5%	1/16W
R977	1-218-965-11	RES,CHIP 10K 5%	1/16W (TR7000)
R977	1-218-969-11	RES,CHIP 22K 5%	1/16W (TR7000E/TR7100E)
R977	1-218-973-11	RES,CHIP 47K 5%	1/16W (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000/TR7000E/TR7100E)
R977	1-218-974-11	RES,CHIP 56K 5%	1/16W (TRV110E/TRV210E/TRV310E)
R978	1-218-975-11	RES,CHIP 68K 5%	1/16W (TRV110E/TRV210E/TRV310E)
R978	1-218-977-11	RES,CHIP 100K 5%	1/16W (EXCEPT:TRV110E/TRV210E/TRV310E)
R979	1-218-990-11	SHORT 0	
R980	1-218-961-11	RES,CHIP 4.7K 5%	1/16W
R981	1-218-953-11	RES,CHIP 1K 5%	1/16W
R982	1-218-953-11	RES,CHIP 1K 5%	1/16W
R983	1-217-671-11	METAL CHIP 1 5%	1/10W
R984	1-217-671-11	METAL CHIP 1 5%	1/10W
R985	1-218-990-11	SHORT 0	
< THERMISTOR >			
TH401	1-809-360-21	THERMISTOR, NTC (2125)	

Ref. No.	Part No.	Description	Remarks
< VIBRATOR >			
X251	1-760-320-11	VIBRATOR, CRYSTAL (28.6363MHz) (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
X251	1-760-321-11	VIBRATOR, CRYSTAL (28.375MHz) (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
X301	1-767-399-11	VIBRATOR, CRYSTAL (24.576MHz)	
X501	1-767-400-11	VIBRATOR, CRYSTAL (36MHz) (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
X501	1-767-586-21	VIBRATOR, CRYSTAL (27MHz) (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	
X601	1-781-309-21	VIBRATOR, CRYSTAL (40.5MHz)	
X801	1-767-450-11	VIBRATOR, CERAMIC (20MHz)	
X802	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)	
X901	1-760-655-41	VIBRATOR, CRYSTAL (20MHz)	
A-7073-876-A VF-126 BOARD, COMPLETE (TRV315/TR7000/TR7000E/TR7100E) ***** (Ref.No.:10000 Series)			
< CAPACITOR >			
C4502	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C4503	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4504	1-135-149-21	TANTALUM CHIP 2.2uF 20%	10V
C4505	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4506	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4507	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4508	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C4509	1-135-181-21	TANTALUM CHIP 4.7uF 20%	6.3V
C4510	1-135-181-21	TANTALUM CHIP 4.7uF 20%	6.3V
C4511	1-135-181-21	TANTALUM CHIP 4.7uF 20%	6.3V
C4512	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4513	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4514	1-107-686-11	TANTAL. CHIP 4.7uF 20%	16V
C4515	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4516	1-164-505-11	CERAMIC CHIP 2.2uF	16V
C4601	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4602	1-115-467-11	CERAMIC CHIP 0.22uF 10%	10V
C4603	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C4604	1-162-967-11	CERAMIC CHIP 0.0033uF 10%	50V
C4605	1-164-217-11	CERAMIC CHIP 150PF 5%	50V
C4606	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4607	1-104-851-11	TANTAL. CHIP 10uF 20%	10V
C4608	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V
C4609	1-162-927-11	CERAMIC CHIP 100PF 5%	50V
C4610	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C4611	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4612	1-107-826-91	CERAMIC CHIP 0.1uF 10%	16V
C4613	1-104-916-11	TANTAL. CHIP 6.8uF 20%	20V
C4614	1-164-676-11	CERAMIC CHIP 2200PF 5%	16V
C4615	1-107-826-91	CERAMIC CHIP 0.1uF 10%	16V
C4617	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C4618	1-135-181-21	TANTALUM CHIP 4.7uF 20%	6.3V
C4619	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C4620	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C4621	1-165-112-11	CERAMIC CHIP 0.33uF	16V

Ref. No.	Part No.	Description			Remarks
C4622	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4623	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C4626	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C4801	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4802	1-113-642-11	TANTAL. CHIP	47uF	20%	10V
C4803	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
△C4804	1-115-464-91	CERAMIC CHIP	0.0022uF	10%	630V
< CONNECTOR >					
CN4501	1-766-350-21	CONNECTOR, FFC/FPC 20P			
CN4602	1-573-356-21	CONNECTOR, FFC/FPC 16P			
< DIODE >					
D4601	8-713-102-80	DIODE 1T369-01-T8A			
D4602	8-719-043-70	DIODE MA6S121-(TX)			
△D4802	8-719-056-49	DIODE 1SS370(TE85L)			
< IC >					
IC4501	8-759-546-65	IC CXA8115AR-T4			
IC4502	8-759-364-05	IC M62376GP-65AD			
IC4601	8-759-097-75	IC MB3789PFV-G-BND-ER			
IC4602	8-752-392-33	IC CXD2458AR-T4			
IC4603	8-759-580-26	IC NJM2130F(TE2)			
< COIL >					
L4501	1-414-754-11	INDUCTOR	10uH		
L4502	1-414-756-11	INDUCTOR	47uH		
L4601	1-414-756-11	INDUCTOR	47uH		
L4602	1-414-756-11	INDUCTOR	47uH		
L4603	1-412-949-21	INDUCTOR	6.8uH		
L4801	1-412-031-11	INDUCTOR CHIP	47uH		
L4802	1-412-029-11	INDUCTOR CHIP	10uH		
< FLUORESCENT INDICATOR >					
△ND4801	1-517-414-71	FLUORESCENT TUBE (0.55 INCH)			
< TRANSISTOR >					
Q4601	8-729-042-29	TRANSISTOR RN1104F(TPL3)			
Q4602	8-729-037-61	TRANSISTOR RN2104F(TPL3)			
Q4603	8-729-045-84	TRANSISTOR RN2105F(TPL3)			
△Q4801	8-729-039-24	TRANSISTOR FX216-TL1			
< RESISTOR >					
R4501	1-216-864-11	METAL CHIP	0	5%	1/16W
R4503	1-216-837-11	METAL CHIP	22K	5%	1/16W
R4504	1-216-837-11	METAL CHIP	22K	5%	1/16W
R4505	1-216-839-11	METAL CHIP	33K	5%	1/16W
R4509	1-216-843-11	METAL CHIP	68K	5%	1/16W
R4510	1-216-839-11	METAL CHIP	33K	5%	1/16W
R4511	1-216-840-11	METAL CHIP	39K	5%	1/16W
R4512	1-216-853-11	METAL CHIP	470K	5%	1/16W
R4513	1-216-840-11	METAL CHIP	39K	5%	1/16W
R4514	1-216-843-11	METAL CHIP	68K	5%	1/16W
R4515	1-216-839-11	METAL CHIP	33K	5%	1/16W
R4516	1-216-841-11	METAL CHIP	47K	5%	1/16W
R4517	1-216-840-11	METAL CHIP	39K	5%	1/16W
R4518	1-216-809-11	METAL CHIP	100	5%	1/16W
R4519	1-216-809-11	METAL CHIP	100	5%	1/16W

Ref. No.	Part No.	Description	Remarks		
R4521	1-216-809-11	METAL CHIP	100	5%	1/16W
R4524	1-218-907-11	RES,CHIP	330K	0.50%	1/16W
R4525	1-218-877-11	RES,CHIP	18K	0.50%	1/16W
R4602	1-216-840-11	METAL CHIP	39K	5%	1/16W
R4604	1-216-835-11	METAL CHIP	15K	5%	1/16W
R4605	1-216-833-11	METAL CHIP	10K	5%	1/16W
R4606	1-218-901-11	RES,CHIP	180K	0.50%	1/16W
R4607	1-216-839-11	METAL CHIP	33K	5%	1/16W
R4608	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R4609	1-216-864-11	METAL CHIP	0	5%	1/16W
R4610	1-216-821-11	METAL CHIP	1K	5%	1/16W
R4611	1-216-843-11	METAL CHIP	68K	5%	1/16W
R4612	1-216-842-11	METAL CHIP	56K	5%	1/16W
R4615	1-216-864-11	METAL CHIP	0	5%	1/16W
R4616	1-218-887-11	RES,CHIP	47K	0.50%	1/16W
R4617	1-216-843-11	METAL CHIP	68K	5%	1/16W
R4618	1-216-850-11	METAL CHIP	270K	5%	1/16W
R4619	1-216-864-11	METAL CHIP	0	5%	1/16W
R4620	1-216-838-11	METAL CHIP	27K	5%	1/16W
R4621	1-216-833-11	METAL CHIP	10K	5%	1/16W
R4622	1-216-847-11	METAL CHIP	150K	5%	1/16W
R4623	1-216-841-11	METAL CHIP	47K	5%	1/16W
R4624	1-216-848-11	METAL CHIP	180K	5%	1/16W
R4625	1-216-840-11	METAL CHIP	39K	5%	1/16W
R4626	1-216-851-11	METAL CHIP	330K	5%	1/16W
R4627	1-216-850-11	METAL CHIP	270K	5%	1/16W
R4629	1-216-837-11	METAL CHIP	22K	5%	1/16W
R4630	1-216-853-11	METAL CHIP	470K	5%	1/16W
R4634	1-216-809-11	METAL CHIP	100	5%	1/16W
R4635	1-216-841-11	METAL CHIP	47K	5%	1/16W
R4636	1-216-845-11	METAL CHIP	100K	5%	1/16W
R4637	1-216-845-11	METAL CHIP	100K	5%	1/16W
R4801	1-216-839-11	METAL CHIP	33K	5%	1/16W

< TRANSFORMER >

△T4801 1-426-848-51 TRANSFORMER, INVERTER

A-7073-838-A VF-129(N) BOARD, COMPLETE
(TRV103/TRV110/TRV110P/TRV203/TRV210/TRV310/TRV310P)

A-7073-855-A VF-129(P) BOARD, COMPLETE
(TRV110E/TRV210E/TRV310E)

(Ref.No.:6000 Series)

< CAPACITOR >

C901	1-107-854-11	TANTAL. CHIP	68uF	20%	6.3V
C902	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C903	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C904	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C905	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C906	1-162-638-11	CERAMIC CHIP	1uF		16V
C907	1-104-563-11	FILM CHIP	0.1uF	5%	16V
C908	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C909	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
△C910	1-162-625-11	CERAMIC CHIP	0.0047uF	5%	50V

Note :

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Note :

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
△ C911	1-164-715-11	CERAMIC CHIP 0.0068uF 5%	50V	R927	1-216-821-11	METAL CHIP 1K 5%	1/16W
C912	1-107-854-11	TANTAL. CHIP 68uF 20%	6.3V	R928	1-216-827-11	METAL CHIP 3.3K 5%	1/16W
C913	1-135-145-11	TANTALUM CHIP 0.47uF 10%	35V	R929	1-216-821-11	METAL CHIP 1K 5%	1/16W
C914	1-113-984-11	TANTAL. CHIP 1.5uF 20%	35V	R930	1-216-791-11	METAL CHIP 3.3 5%	1/16W
C915	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V	R931	1-217-671-11	METAL CHIP 1 5%	1/10W
C916	1-164-611-11	CERAMIC CHIP 0.001uF 10%	500V	R932	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
< CONNECTOR >				< VARIABLE RESISTOR >			
CN901	1-573-506-41	CONNECTOR, FPC (NON ZIF) 4P		RV903	1-238-852-11	RES, ADJ, CERMET 470	
* CN902	1-580-057-11	PIN, CONNECTOR (SMD) 4P		RV904	1-238-861-11	RES, ADJ, CERMET 470K	
< DIODE >				< TRANSFORMER >			
D901	8-719-951-21	DIODE PR1102W-TR		△ T901	1-453-124-11	TRANSFORMER ASSY, FLYBACK	
D903	8-719-073-01	DIODE MA111-(K8).S0		< CRT SOCKET >			
< IC >				△ W901	1-540-019-21	SOCKET ASSY, CRT	
IC901	8-759-196-14	IC BA7149F-E2		MISCELLANEOUS			
< COIL >				*****			
L901	1-412-031-11	INDUCTOR CHIP 47uH		7	1-673-118-21	FP-76 FLEXIBLE BOARD	
L902	1-410-387-11	INDUCTOR CHIP 33uH		8	1-418-273-11	SWITCH BLOCK, CONTROL (MF-9500)	
△ L903	1-411-697-11	COIL, FERRITE (HLC)		9	1-694-384-11	TERMINAL BOARD, BATTERY	
< TRANSISTOR >				15	1-672-663-21	FP-49 FLEXIBLE BOARD	
Q901	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX		16	1-783-240-11	CABLE, FLEXIBLE FLAT (FFC-236)	
Q902	8-729-106-68	TRANSISTOR 2SD1615-T1GLGK		19	1-673-119-11	FP-77 FLEXIBLE BOARD	
Q903	8-729-216-31	TRANSISTOR 2SA1163G-TE85L		51	1-418-274-11	SWITCH BLOCK, CONTROL (PS-9500)	
Q904	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX		56	1-672-668-21	FP-62 FLEXIBLE BOARD	
< RESISTOR >				101	1-418-274-11	SWITCH BLOCK, CONTROL (PS-9500)	
R901	1-216-817-11	METAL CHIP 470 5%	1/16W	103	1-672-668-21	FP-62 FLEXIBLE BOARD	
R902	1-216-817-11	METAL CHIP 470 5%	1/16W	151	1-418-274-11	SWITCH BLOCK, CONTROL (PS-9500)	
R903	1-216-057-00	METAL CHIP 2.2K 5%	1/10W	153	1-672-668-21	FP-62 FLEXIBLE BOARD	
R904	1-216-833-11	METAL CHIP 10K 5%	1/16W	216	1-475-619-11	SWITCH BLOCK, CONTROL (SS-8500)	
R905	1-216-822-11	METAL CHIP 1.2K 5%	1/16W	222	1-469-364-11	FILTER, EMI (CS)	
R906	1-216-823-11	METAL CHIP 1.5K 5%	1/16W	(TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)			
R907	1-216-845-11	METAL CHIP 100K 5%	1/16W	224	1-475-617-51	SWITCH BLOCK, CONTROL (FK-8500)	
R908	1-216-852-11	METAL CHIP 390K 5%	1/16W	(TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)			
R909	1-216-833-11	METAL CHIP 10K 5%	1/16W	224	1-475-617-71	SWITCH BLOCK, CONTROL (FK-8500)	
R910	1-216-835-11	METAL CHIP 15K 5%	1/16W	(EXCEPT:TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)			
R911	1-216-160-00	RES,CHIP 27 5%	1/8W	226	1-672-672-11	FP-45 FLEXIBLE BOARD (TRV110:BR)	
R912	1-216-857-11	METAL CHIP 1M 5%	1/16W	226	1-672-672-21	FP-45 FLEXIBLE BOARD (TRV110:BR)	
R915	1-218-879-11	RES,CHIP 22K 0.50%	1/16W	227	1-774-867-31	CONNECTOR,EXTERNAL (HOT SHOE) 8P	
(EXCEPT:TRV110E/TRV210E/TRV310E)				228	1-672-665-11	FP-54 FLEXIBLE BOARD	
R916	1-218-881-11	RES,CHIP 27K 0.50%	1/16W	231	1-673-120-11	FP-78 FLEXIBLE BOARD	
(TRV110E/TRV210E/TRV310E)				236	1-469-363-11	FILTER, EMI (MD)	
R917	1-218-891-11	RES,CHIP 68K 0.50%	1/16W	(TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/TRV310E:AEP,UK/TR7000E/TR7100E)			
(EXCEPT:TRV110E/TRV210E/TRV310E)				254	1-959-310-11	HARNESS (DP-74)	
R917	1-218-893-11	RES,CHIP 82K 0.50%	1/16W	(TRV103/TRV110/TRV110E/TRV110P)			
(TRV110E/TRV210E/TRV310E)				256	1-668-963-21	FP-642 FLEXIBLE BOARD	
R918	1-216-829-11	METAL CHIP 4.7K 5%	1/16W	(TRV103/TRV110/TRV110E/TRV110P)			
R919	1-216-843-11	METAL CHIP 68K 5%	1/16W	306	1-668-963-41	FP-642 FLEXIBLE BOARD	
R920	1-216-837-11	METAL CHIP 22K 5%	1/16W	(TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)			
R921	1-216-795-11	RES,CHIP 6.8 5%	1/16W				
R922	1-216-850-11	METAL CHIP 270K 5%	1/16W				
R923	1-216-857-11	METAL CHIP 1M 5%	1/16W				
R924	1-216-862-11	RES,CHIP 2.7M 5%	1/16W				
R925	1-216-862-11	RES,CHIP 2.7M 5%	1/16W				
R926	1-216-821-11	METAL CHIP 1K 5%	1/16W				

Note :
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Note :
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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
362	1-790-412-11	CABLE, FLEXIBLE FLAT (FFC-256) (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)				ACCESSORIES *****	
410	1-672-662-11	FP-47 FLEXIBLE BOARD (TRV315/TR7000/TR7000E/TR7100E)			1-475-141-61	REMOTE COMMANDER RMT-814	
460	1-758-155-21	FILTER BLOCK, OPTICAL (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	△		1-475-599-11	ADAPTOR, AC	
460	1-758-216-21	FILTER BLOCK, OPTICAL (EXCEPT:TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)			1-569-007-11	ADAPTOR, CONVERSION 2P (TRV110:JE/TRV310:JE/TRV310E:JE)	
760	1-658-213-11	FP-355 FLEXIBLE BOARD			1-569-008-21	ADAPTOR, CONVERSION 2P (TRV110:E,HK,BR/TRV110E:E,HK/TRV110P/ TRV310:E,HK/TRV310E:E,HK)	
762	1-657-786-13	FP-221 FLEXIBLE BOARD			1-573-291-11	ADAPTOR, CONVERSION 21PIN (TRV110E:AEP,UK,EE,NE,RU/TRV210E:AEP,UK/ TRV310E:AEP, UK/TR7000E/TR7100E)	
764	1-658-214-11	FP-356 FLEXIBLE BOARD					
803	1-672-542-11	FP-38 FLEXIBLE BOARD					
817	1-657-784-11	FP-220 FLEXIBLE BOARD					
D001	8-719-988-42	DIODE GL453	△*		1-575-131-11	CORD, POWER (TRV110:BR)	
			△*		1-769-608-11	CORD, POWER (TRV110:E/TRV110E:E/TRV110P/TRV310:E/ TRV310E:E/TRV310P)	
IC1401	A-7030-821-A	CCD BLOCK ASSY (CCD IMAGER) (EXCEPT:TRV110E/TRV210E/TR310E/TR7000E/TR7100E)			1-575-334-11	AV CONNECTING CABLE (1.5M)	
IC2401	A-7030-885-A	CCD BLOCK ASSY (CCD IMAGER) (TRV110E/TRV210E/TR310E/TR7000E/TR7100E)	△		1-690-827-11	CORD SET, POWER (TRV110E:AEP,EE,NE,RU/TRV210E:AEP/ TRV310E:AEP/TR7000E:AEP/TR7100E)	
J001	1-565-276-31	JACK, ULTRA SMALL 1P (LANC)			1-696-819-11	CORD, POWER (TRV110E:AUS/TRV310E:AUS)	
△LED901	1-517-866-11	LIGHT, BACK	△				
LCD901	1-803-355-21	MODULE, CRYSTAL INDICATION (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)	△		1-775-843-21	CORD, POWER (WITH FILTER) (TRV110E:UK/TRV210E:UK/TRV310E:UK/TR7000E:UK)	
LCD901	1-803-357-21	MODULE, CRYSTAL INDICATION (TRV110E:AEP,UK,EE,NE,RU)	△		1-782-476-11	CORD, POWER (TRV110E:CN/TRV210E:CN/TRV310E:CN)	
LCD901	1-803-032-21	MODULE, CRYSTAL INDICATION (TRV310/TRV310P)	△		1-783-374-11	CORD, POWER (TRV110:HK/TRV110E:HK/TRV310:HK/TRV310E:HK)	
LCD901	1-803-359-21	MODULE, CRYSTAL INDICATION (TRV203/TRV210/TRV210E/TRV315)	△		1-790-073-11	CORD, POWER 2P (TRV110E:JE/TRV310:JE/TRV310E:JE)	
LCD901	1-803-360-21	MODULE, CRYSTAL INDICATION (TRV310:US/TRV310E)	△		1-790-107-22	CORD, POWER (TRV103/TRV110:US,CND/TRV203/TRV210/ TRV310:US/TRV315/TR7000)	
M901	A-7048-904-A	DRUM BLOCK ASSY (DKH-01A-R)					
M902	8-835-635-01	MOTOR, DC SCE12A/C-NP (CAPSTAN)			3-054-045-01	VIDEO, HOW TO TAKE (TRV103:US/TRV110:US/TRV210:US/ TRV310:US/TRV315:US/TR7000:US)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)			3-742-854-01	LID, BATTERY CASE (for RMT-814)	
M905	1-763-262-11	MOTOR, FOCUS STEPPING			3-865-871-11	MANUAL, INSTRUCTION (ENGLISH) (TRV103/TRV110:US,CND)	
M906	1-763-046-11	MOTOR, ZOOM STEPPING			3-865-871-21	MANUAL, INSTRUCTION (FRENCH) (TRV103:CND/TRV110:CND)	
MIC901	1-542-312-11	MICROPHONE (L)			3-865-871-31	MANUAL, INSTRUCTION (ENGLISH) (TRV110:E,HK/TRV110P)	
MIC902	1-542-312-11	MICROPHONE (R)					
△ND901	1-517-751-31	TUBE, FLUORESCENT,COLD CATHODE (TRV103/TRV110/TRV110E:E,HK,AUS,CN,JE/TRV110P)			3-865-871-41	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE)(TRV110:E,HK/TRV110P)	
△ND901	1-517-751-41	TUBE, FLUORESCENT,COLD CATHODE (TRV110E:AEP,UK,EE,NE,RU)			3-865-871-51	MANUAL, INSTRUCTION (TRADITIONAL CHINESE)(TRV110:E,HK/TRV110P)	
△ND901	1-517-855-11	TUBE, FLUORESCENT,COLD CATHODE (TRV310/TRV310E/TRV310P)			3-865-871-61	MANUAL, INSTRUCTION (KOREAN) (TRV110:E/TRV110P)	
△ND901	1-517-856-11	TUBE, FLUORESCENT,COLD CATHODE (TRV203/TRV210/TRV210E/TRV315)			3-865-968-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TR7000E/TR7100E)	
S001	1-692-614-11	SWITCH, PUSH (3KEY) (Hi8 MP,ME/MP,REC PROOF)			3-865-968-21	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE)(TR7000E:AEP/TR7100E)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C.LOCK)					
S901	1-762-436-15	SWITCH, ROTARY (ENCODER)					
SP901	1-504-753-41	SPEAKER (2.8CM) (EXCEPT:TR7000/TR7000E/TR7100E)					
△V901	1-452-673-61	CRT ASSY (M01KXX90WB) (EXCEPT:TRV315/TR7000/TR7000E/TR7100E)					

Be sure to read "Precautions upon replacing CCD imager"
on page 4-11, 14 when changing the CCD imager.

Note :
The components identified by
mark △ or dotted line with mark
△ are critical for safety.
Replace only with part number
specified.

Note :
Les composants identifiés par
une marque △ sont critiques
pour la sécurité.
Ne les remplacer que par une
pièce portant le numéro spécifié.

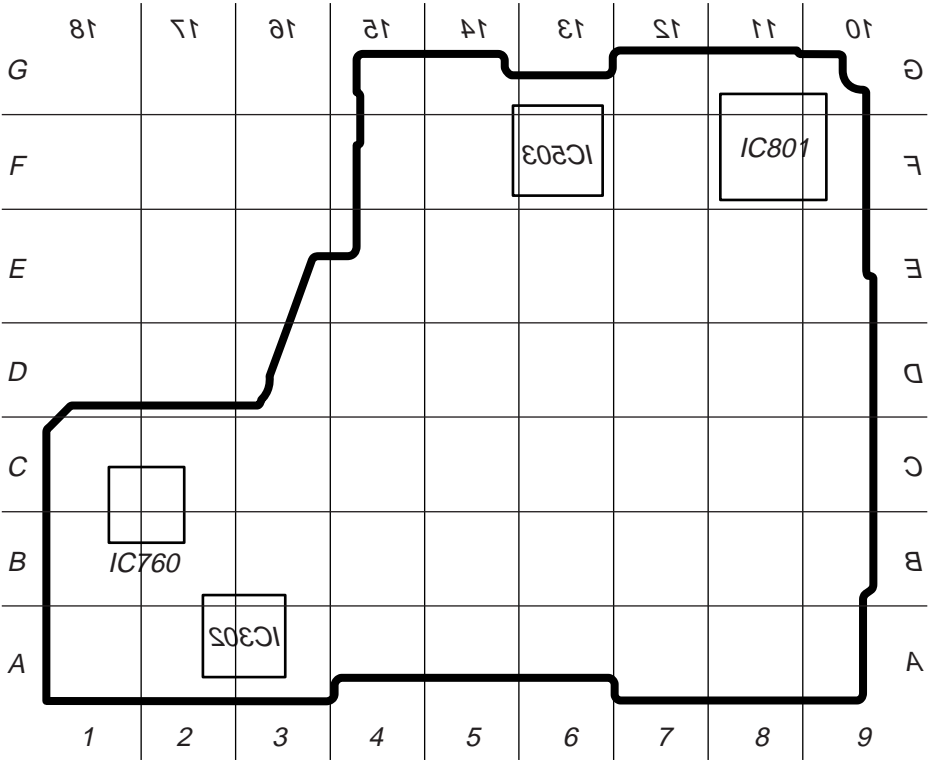
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
	3-865-968-31	MANUAL, INSTRUCTION (GERMAN/ITALIAN) (TR7000E:AEP/TR7100E)	
	3-865-968-41	MANUAL, INSTRUCTION (DUTCH/FRENCH) (TR7000E:AEP/TR7100E)	
	3-865-969-11	MANUAL, INSTRUCTION (ENGLISH)(TR7000)	
	3-865-969-21	MANUAL, INSTRUCTION (FRENCH) (TR7000:CND)	
	3-865-970-11	MANUAL, INSTRUCTION(ENGLISH/RUSSIAN) (TRV110E:EE,NE,RU)	
	3-865-970-21	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE)(TRV110E:AEP1)	
	3-865-970-31	MANUAL, INSTRUCTION (DUTCH/ITALIAN) (TRV110E:AEP2)	
	3-865-970-41	MANUAL, INSTRUCTION (ENGLISH/DUTCH) (TRV110E:AEP,UK)	
	3-865-970-51	MANUAL, INSTRUCTION (SWEDISH/POLISH) (TRV110E:EE,NE,RU)	
	3-865-971-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TRV110E:E,HK,AUS,CN,JE)	
	3-865-971-21	MANUAL, INSTRUCTION (FRENCH/GERMAN) (TRV110E:E,HK,JE)	
	3-865-971-31	MANUAL, INSTRUCTION (ARABIC/PERSIAN) (TRV110E:E)	
	3-865-971-41	MANUAL, INSTRUCTION (TRADITIONAL CHINESE)(TRV110E:HK)	
	3-865-971-51	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE)(TRV110E:E,CN,JE)	
	3-865-972-11	MANUAL, INSTRUCTION (ENGLISH) (TRV203/TRV210/TRV310:US/TRV315)	
	3-865-972-21	MANUAL, INSTRUCTION (FRENCH) (TRV203/TRV210:CND/TRV315:CND)	
	3-865-972-31	MANUAL, INSTRUCTION (ENGLISH) (TRV310:E,HK,JE/TRV310P)	
	3-865-972-41	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE)(TRV310:E,HK,JE/TRV310P)	
	3-865-972-51	MANUAL, INSTRUCTION (TRADITIONAL CHINESE)(TRV310:E/TRV310P)	
	3-865-972-61	MANUAL, INSTRUCTION (KOREAN) (TRV310:E/TRV310P)	
	3-865-972-71	MANUAL, INSTRUCTION (KOREAN) (TRV310:JE)	
	3-865-973-11	MANUAL, INSTRUCTION (ENGLISH) (TRV210E:AEP,UK/TRV310E:AEP,UK)	
	3-865-973-21	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE)(TRV210E:AEP/TRV310E:AEP)	
	3-865-973-31	MANUAL, INSTRUCTION (DUTCH/ITALIAN) (TRV210E:AEP/TRV310E:AEP)	
	3-865-973-41	MANUAL, INSTRUCTION (FRENCH/DUTCH) (TRV210E:AEP/TRV310E:AEP)	
	3-865-974-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TRV210E:CN/TRV310E:E,HK,AUS,CN,JE)	
	3-865-974-21	MANUAL, INSTRUCTION (FRENCH/GERMAN) (TRV210E:CN/TRV310E:E,HK,CN,JE)	
	3-865-974-41	MANUAL, INSTRUCTION (TRADITIONAL CHINESE)(TRV210E:CN/TRV310E:E,HK,CN)	
	3-865-974-51	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE)(TRV210E:CN/TRV310E:E,CN,JE)	
	3-987-015-01	BELT (S), SHOULDER	
	3-988-960-01	BAG (8500), CARRYING (TRV110P/TRV310P)	
	8-883-112-29	V8-6CLHSP	
	A-7094-140-A	NP-F330 BATTERY PACK (TRV103/TRV110:US,CND,E,HK/TRV110P/TRV203/TRV210/ TRV310/TRV310P/TRV315/TR7000)	
	A-7094-141-A	NP-F330 BATTERY PACK (TRV110:BR/TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)	

<PARTS REFERENCE SHEET>

You can find the parts position of location of mount locations applying to VC-213 board of a set.

VC-213 DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315 DCR-TR7000/TR7000E/TR7100E

SIDE A



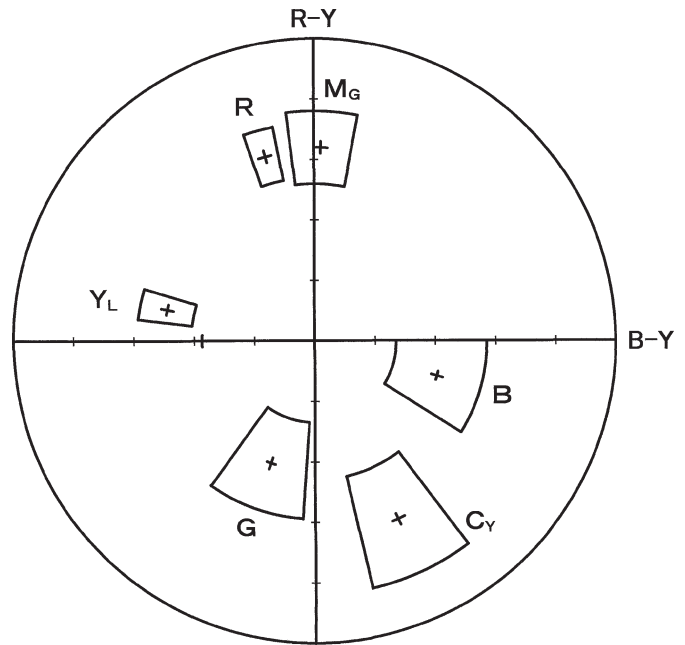
VC-213 DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315 DCR-TR7000/TR7000E/TR7100E

SIDE B



〈FOR CAMERA COLOR REPRODUCTION ADJUSTMENT〉

For NTSC 720H model

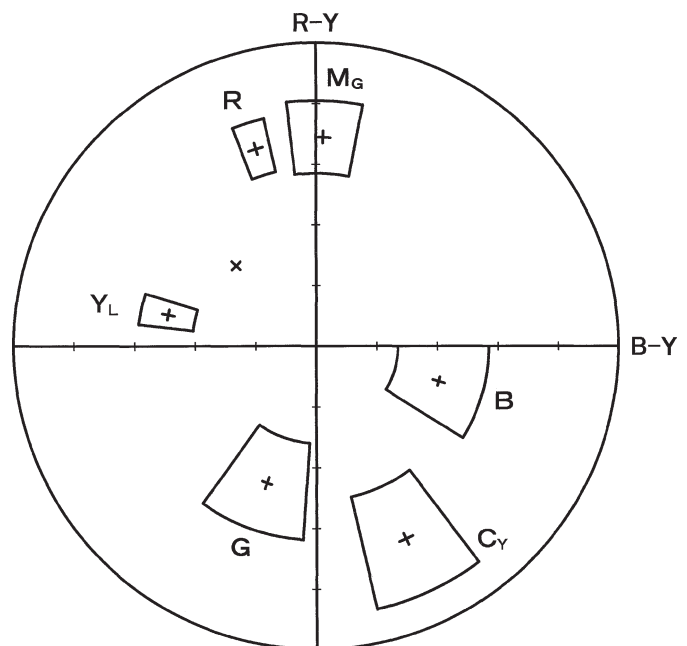


Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts referencesheets with a clear sheet for use.

*DCR-TRV103/TRV110/TRV110P/TRV203/
TRV210/TRV310/TRV310P/TRV315
DCR-TR7000*



For PAL 960H model

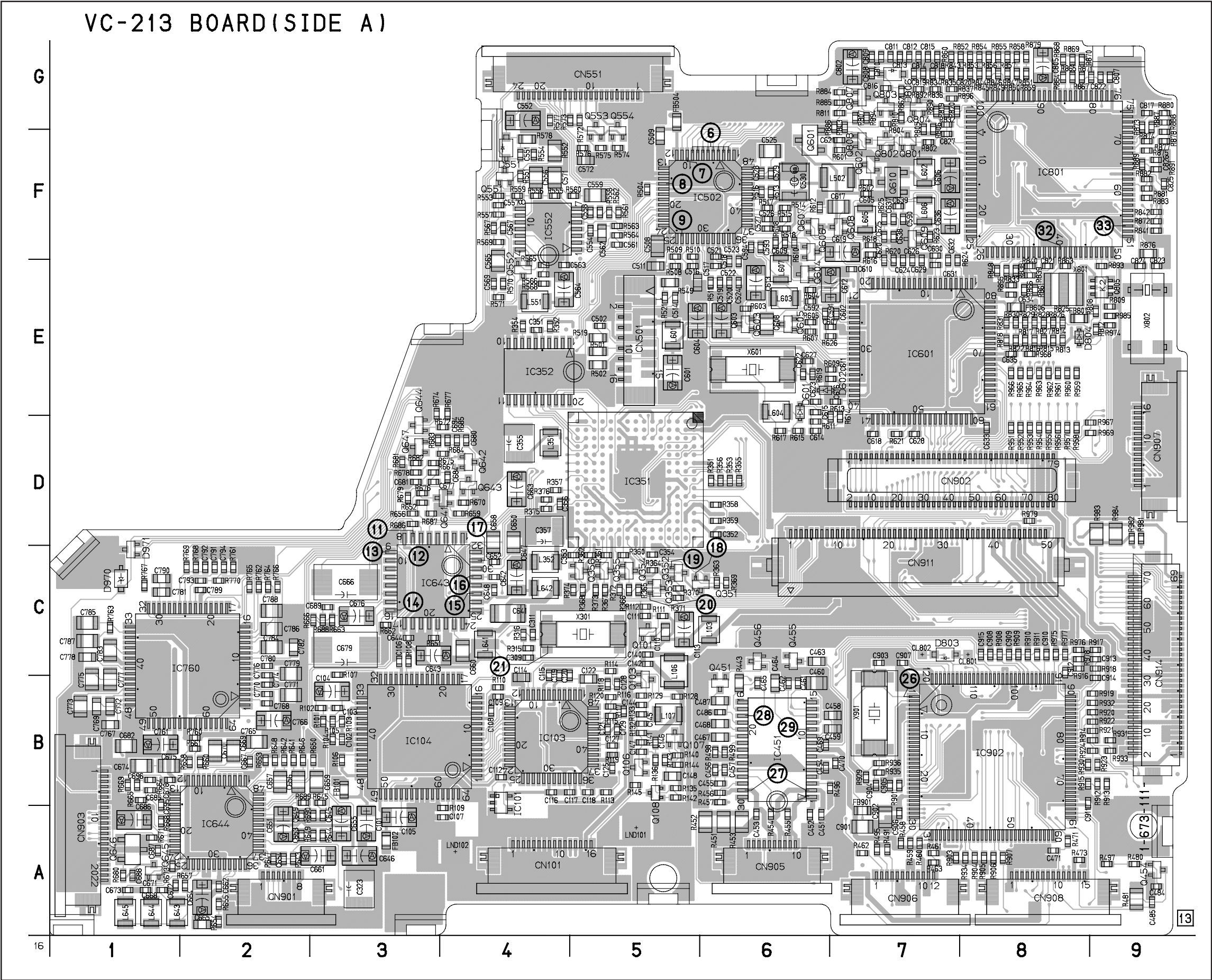


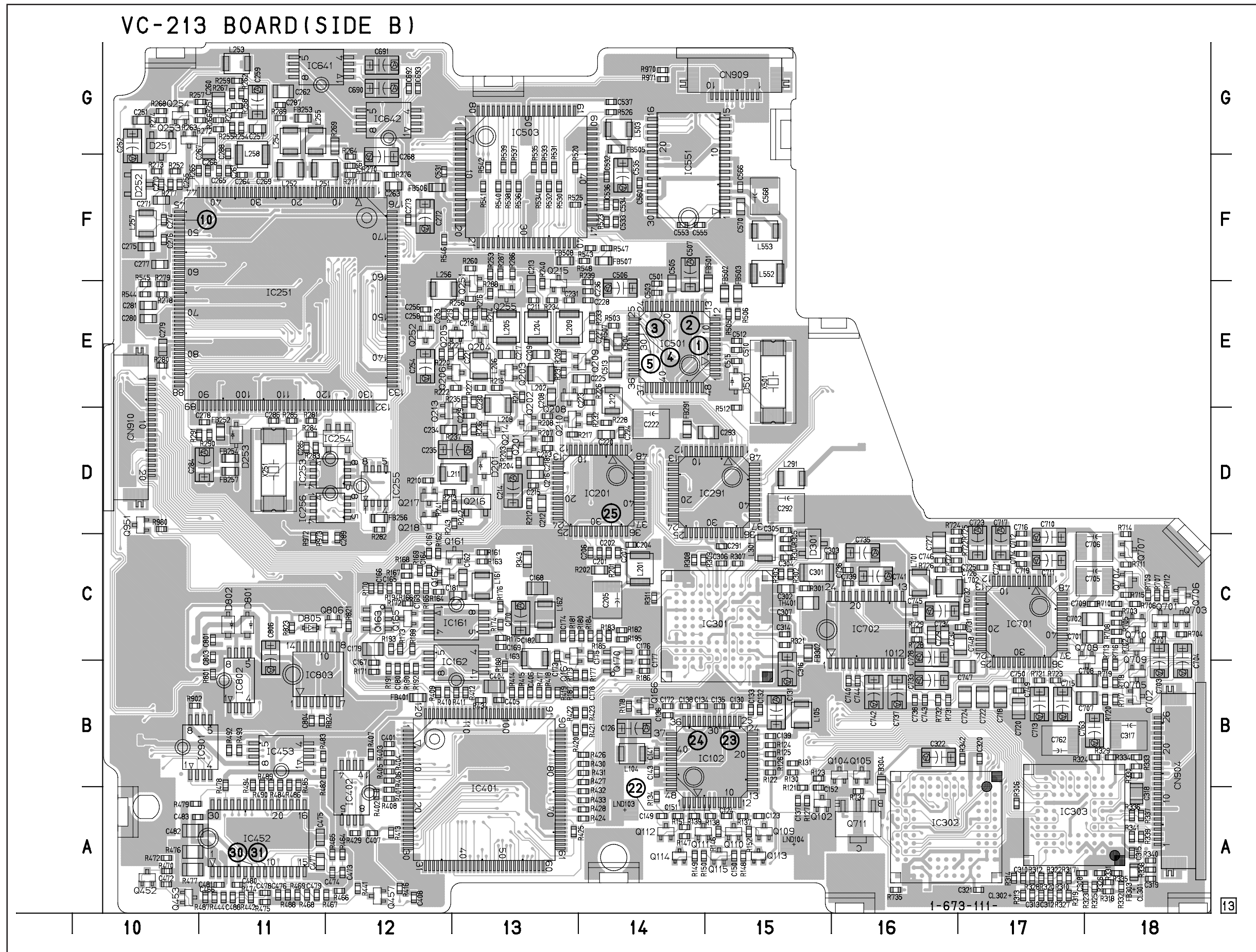
*DCR-TRV110E/TRV210E/TRV310E
DCR-TR7000E/TR7100E*



**DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/
TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TR7000/TR7000E/TR7100E**











— 2 —





 : Added portion.  : Changed portion.

Page	Added contents									
4-69	VC-213 BOARD (SIDE B) LOCATION TABLE									
	C142	B-14	C401	B-12	<div><div></div><div>R121</div><div>B-15</div></div>		R430	B-14		
	C149	A-14	C404	B-13			R431	B-14		
	C150	A-15	C405	B-13			R432	A-14		
	C151	A-14	C406	B-13	<div><div></div><div>R123</div><div>B-15</div></div>		R433	A-14		
	<div><div></div><div>C152</div><div>B-15</div></div>		C407	A-12			<div><div></div><div>R434</div><div>B-13</div></div>			
			<div><div></div><div>C408</div><div>A-12</div></div>		R124	B-15				
	C161	C-12			R125	B-15		R441	A-12	
	C162	C-13	C472	A-10	R126	B-15		R442	A-11	
	C163	C-12	C473	A-12	R127	A-15		R444	A-11	
	C164	C-12	C474	A-12	R130	B-15		R464	A-12	

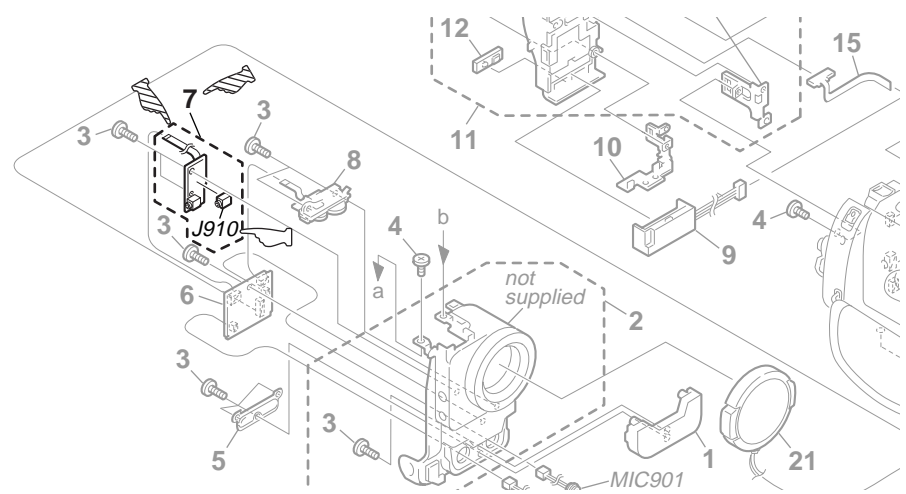



Page	INCORRECT					CORRECT				
	Ref. No.	Part No.	Description	Remarks		Ref. No.	Part No.	Description	Remarks	
6-26						C152	1-107-820-11	CERAMIC CHIP 0.1uF	16V	
6-27						C408	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V	
6-28	C622	1-164-847-11	CERAMIC CHIP 7PF 0.5PF 16V			C622	1-164-847-11	CERAMIC CHIP 7PF 0.5PF 16V		
								 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		
						C622 (Note)	1-164-844-11	CERAMIC CHIP 4PF 0.25PF 16V		
								(TRV103/TRV110/TRV110P/TRV203/TRV210/TRV310/TRV310P/TRV315/TR7000)		
6-31	D601	8-719-071-32	DIODE HVC350BTRF			D601	8-719-071-32	DIODE HVC350BTRF		
								 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		
						D601 (Note)	8-719-076-01	DIODE 1SV305(TPL3)		
								(TRV103/TRV110/TRV110P/TRV203/TRV210/TRV310/TRV310P/TRV315/TR7000)		
	D602	8-719-071-32	DIODE HVC350BTRF			D602	8-719-071-32	DIODE HVC350BTRF		
								 (TRV110E/TRV210E/TRV310E/TR7000E/TR7100E)		
						D602 (Note)	8-719-076-01	DIODE 1SV305(TPL3)		
								(TRV103/TRV110/TRV110P/TRV203/TRV210/TRV310/TRV310P/TRV315/TR7000)		
					 Note : Replace both parts C622, D601 and D602 together simultaneously when either one of them is replaced.					
6-35						R434	1-218-949-11	RES,CHIP 470 5%	1/16W	

 : Added portion. : Changed portion.

Page	OLD				NEW			
	Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
			VF-129(N) BOARD, COMPLETE *****				VF-129(N) BOARD, COMPLETE *****	
			< CONNECTOR >				< CONNECTOR >	
6-41	CN901	1-573-506-41	CONNECTOR, FPC (NON ZIF) 4P		* CN901	1-785-379-01	CONNECTOR, FPC (NON ZIF) 4P	
	<p>Note : CN901 (1-785-379-01) is changed together with the board to suffix -12. When the VF-129 board is going to be replaced, confirm the board suffix number. If the suffix of the board is -12 or higher, replace CN901 at the same time.</p>							
	VF-129 BOARD (SIDE A)				VF-129 BOARD (SIDE B)			
4-117								
	16	1	2	3	1-672-669-			

- HP jack is changed from “ not supplied ” to a repair part for service.




 : Added portion.  : Changed portion.

Page	Changed contents										
6-1	<h2>SECTION 6. REPAIR PARTS LIST</h2> <h3>6-1-1. FRONT PANEL (N) AND BATTERY PANEL (P) BLOCK ASSEMBLY</h3> 										
	<table> <tr> <th>Ref. No.</th><th>Part No.</th><th>Description</th><th>Remarks</th></tr> <tr> <td> J910</td><td>1-695-514-21</td><td>JACK (SMALL TYPE) 1P (HEADPHONES)</td><td></td></tr> </table>				Ref. No.	Part No.	Description	Remarks	 J910	1-695-514-21	JACK (SMALL TYPE) 1P (HEADPHONES)
Ref. No.	Part No.	Description	Remarks								
 J910	1-695-514-21	JACK (SMALL TYPE) 1P (HEADPHONES)									

[CORRECTION]

Correct your service manual as shown below.

 : Added portion. : Changed portion.

Page	INCORRECT				CORRECT			
	Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
6-7	6-1-7. LCD BLOCK ASSEMBLY (3.0/3.5 INCH LCD MODEL) (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)							
	LCD901	1-803-359-21	MODULE, CRYSTAL INDICATION (EXCEPT:TRV310/TRV310P)		LCD901	1-803-359-21	MODULE, CRYSTAL INDICATION (TRV203/TRV210/TRV210E/TRV315)	
	_____	_____			LCD901	1-803-360-21	MODULE, CRYSTAL INDICATION (TRV310:US/TRV310E)	
6-42	MISCELLANEOUS *****							
	LCD901	1-803-359-21	MODULE, CRYSTAL INDICATION (TRV203/TRV210/TRV210E/TRV310E/TRV315)		LCD901	1-803-359-21	MODULE, CRYSTAL INDICATION (TRV203/TRV210/TRV210E/TRV315)	
	_____	_____			LCD901	1-803-360-21	MODULE, CRYSTAL INDICATION (TRV310:US/TRV310E)	
6-43E	ACCESSORIES *****							
		3-865-969-01	MANUAL, INSTRUCTION (ENGLISH) (TR7000)			3-865-969-11	MANUAL, INSTRUCTION (ENGLISH) (TR7000)	

SONY®

SERVICE MANUAL

1999. 12

US Model
DCR-TRV103/TRV110/TRV210/TRV310/TRV315/TR7000
Canadian Model
DCR-TRV103/TRV110/TRV203/TRV210/TRV315/TR7000
E Model
DCR-TRV110/TRV110E/TRV110P/
TRV310/TRV310E/TRV310P
Hong Kong Model
DCR-TRV110E/TRV310/TRV310E
AEP Model
DCR-TRV110E/TRV210E/TRV310E/
TR7000E/TR7100E
UK Model
DCR-TRV110E/TRV210E/TRV310E/TR7000E
Tourist Model
DCR-TRV110E/TRV310/TRV310E
Australian Model
DCR-TRV110E/TRV310E
Brazilian Model
DCR-TRV110
Chinese Model
DCR-TRV110E/TRV210E/TRV310E
East European Model
North European Model
Russian Model
DCR-TRV110E
Taiwan Model
DCR-TRV310

SUPPLEMENT-2

File this supplement-2 with the Service Manual.
(99-022)

- TYPE S is added to the 3.5 LCD panel..... (page 1 to 5)



Target model : DCR-TRV310 (US model)

Applicable serial Nos.

Models	Serial Nos.
DCR-TRV310: US	1269351 – 1272150

- HP jack is changed from “ not supplied ” to a repair part for service. (page 5)
- Correction of repair part supply. (page 6)

 : Added portion. : Changed portion.

Page	Changed contents
4	<p>Table for difference of function</p> <p> Note1 : EE, NE, RU model is 360x.</p> <p> Note2 : There are two types of LCDs (TYPE C and TYPE S) in the DCR-TRV310: US.</p>

 : Added portion.


Page

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SECTION 5. ADJUSTMENTS

1-6. LCD SYSTEM ADJUSTMENTS

(DCR-TRV103/TRV110/TRV110E/TRV110P/
TRV203/TRV210/TRV210E/TRV310/
TRV310E/ TRV310P/TRV315

Note 5: LCD TYPE S model: DCR-TRV103/TRV110/TRV110E/
TRV110P/TRV203/TRV210/TRV210E/
TRV310:US/TRV310E/TRV315
LCD TYPE C model: DCR-TRV310/TRV310P


Note 6: There are two types of LCDs in the DCR-TRV310:US.
Before adjustment, confirm which type of them is being used.




5-38

[LCD type check]

PD-105/106 board CN5501


Resistor value	LCD type	Model
1kΩ	2.5 LCD TYPE S 61k	CCD-TRV103/TRV110/TRV110P/ TRV110E (E,HK,AUS,CN,JE)
2.2kΩ	2.5 LCD TYPE S 84k	CCD-TRV103E (AEP, UK, EE, NE, RU)
4.7kΩ	3 LCD TYPE S	CCD-TRV203/TRV210/ TRV210E/TRV315
5.6kΩ	3.5 LCD TYPE S	CCD- TRV310:US /TRV310E 
6.8kΩ	3.5 LCD TYPE C	CCD-TRV310/TRV310P

3. VCO Adjustment (PD-105/106 board)

Note : LCD TYPE S model: DCR-TRV103/TRV110/TRV110E/TRV110P/
TRV203/TRV210/TRV210E/TRV310:US/
TRV310E/TRV315


LCD TYPE C model: DCR-TRV310/TRV310P

5. Bright Adjustment (PD-105/106 board)

Note : 2.5 LCD TYPE S model: DCR-TRV103/TRV110/TRV110E/
TRV110P
3/3.5 LCD TYPE S model: DCR-TRV203/TRV210/TRV210E/
TRV310:US/TRV310E/TRV315
LCD TYPE C model: DCR-TRV310/TRV310P

 : Added portion.  : Deleted portion.

Page	Changed contents				
5-41	<div>7. V-COM Level Adjustment (PD-105/106 board)</div> <table><tr><td>Specified Value</td><td>A=6.15 ± 0.05V (2.5 LCD TYPE S 61k NTSC) A=6.48 ± 0.05V (2.5 LCD TYPE S 61k PAL) A=6.03 ± 0.05V (2.5 LCD TYPE S 84k PAL) A=6.28 ± 0.05V (3 LCD TYPE S NTSC) A=6.60 ± 0.05V (3 LCD TYPE S PAL) A=6.60 ± 0.05V (3.5 LCD TYPE S PAL) A=5.10 ± 0.05V (3.5 LCD TYPE C NTSC) A=6.38 ± 0.05V (3.5 LCD TYPE S NTSC)</td></tr></table> <div>Note 2 : 2.5 LCD TYPE S 61k NTSC model : DCR-TRV103/TRV110/ TRV110P 2.5 LCD TYPE S 84k PAL model : DCR-TRV110E (AEP,UK,EE,NE,RU) 2.5 LCD TYPE S 61k PAL model : DCR-TRV110E (E,HK,AUS,CN,JE) 3 LCD TYPE S NTSC model : DCR-TRV203/TRV210/TRV315 3 LCD TYPE S PAL model : DCR-TRV210E 3.5 LCD TYPE S PAL model : DCR-TRV310E 3.5 LCD TYPE C NTSC model : DCR-TRV310/TRV310P 3.5 LCD TYPE S NTSC model : DCR-TRV310:US</div> <div>8. Color Adjustment (PD-105/106 board)</div> <table><tr><td>Specified Value</td><td>A=0.43 ± 0.05V (2.5 LCD TYPE S 61k NTSC) A=0.45 ± 0.05V (2.5 LCD TYPE S 61k PAL) A=0.36 ± 0.05V (2.5 LCD TYPE S 84k PAL) A=0.49 ± 0.05V (3 LCD TYPE S NTSC) A=0.43 ± 0.05V (3 LCD TYPE S PAL) A=0.40 ± 0.05V (3.5 LCD TYPE S PAL) A=0.22 ± 0.05V (3.5 LCD TYPE C NTSC)</td></tr></table> <div>Note : 2.5 LCD TYPE S 61k NTSC model :DCR-TRV103/TRV110/ TRV110P 2.5 LCD TYPE S 84k PAL model : DCR-TRV110E (AEP,UK,EE,NE,RU) 2.5 LCD TYPE S 61k PAL model : DCR-TRV110E (E,HK,AUS,CN,JE) 3 LCD TYPE S NTSC model : DCR-TRV203/TRV210/TRV315 3 LCD TYPE S PAL model : DCR-TRV210E 3.5 LCD TYPE S PAL model : DCR-TRV310:US/TRV310E 3.5 LCD TYPE C NTSC model : DCR-TRV310/TRV310P</div>	Specified Value	A=6.15 ± 0.05V (2.5 LCD TYPE S 61k NTSC) A=6.48 ± 0.05V (2.5 LCD TYPE S 61k PAL) A=6.03 ± 0.05V (2.5 LCD TYPE S 84k PAL) A=6.28 ± 0.05V (3 LCD TYPE S NTSC) A=6.60 ± 0.05V (3 LCD TYPE S PAL) A=6.60 ± 0.05V (3.5 LCD TYPE S PAL) A=5.10 ± 0.05V (3.5 LCD TYPE C NTSC) A=6.38 ± 0.05V (3.5 LCD TYPE S NTSC)	Specified Value	A=0.43 ± 0.05V (2.5 LCD TYPE S 61k NTSC) A=0.45 ± 0.05V (2.5 LCD TYPE S 61k PAL) A=0.36 ± 0.05V (2.5 LCD TYPE S 84k PAL) A=0.49 ± 0.05V (3 LCD TYPE S NTSC) A=0.43 ± 0.05V (3 LCD TYPE S PAL) A=0.40 ± 0.05V (3.5 LCD TYPE S PAL) A=0.22 ± 0.05V (3.5 LCD TYPE C NTSC)
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5-42	<div>10. White Balance Adjustment (PD-105/106 board)</div> <div>Note 2 : LCD TYPE S model: DCR-TRV103/TRV110/TRV110E/ TRV110P/TRV203/TRV210/TRV210E/ TRV310:US/TRV310E/TRV315 LCD TYPE C model: DCR-TRV310/TRV310P</div>				

 : Added portion.  : Changed portion.

Page	OLD		NEW	
	<u>Ref. No.</u>	<u>Part No.</u> <u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u> <u>Description</u>
		<u>Remarks</u>		<u>Remarks</u>
	6-1-4. CABINET (R) BLOCK ASSEMBLY (3.0/3.5 INCH LCD MODEL) (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)			
6-4	161	X-3949-449-1 CABINET (R) (955) ASSY (TRV203/TRV210/TRV210E:CN/TRV310:US,HK,E,JE/ TRV310E:E,HK,AUS,CN,JE/TRV310P/TRV315)	161	X-3949-449-5 CABINET (R) (955) ASSY (TRV203/TRV210/TRV210E:CN/TRV310:US,HK,E,JE/ TRV310E:E,HK,AUS,CN,JE/TRV310P/TRV315)
	161	X-3949-475-1 CABINET (R) (955) ASSY (TRV210E:AEP,UK/TRV310E:AEP,UK)	161	X-3949-475-5 CABINET (R) (955) ASSY (TRV210E:AEP,UK/TRV310E:AEP,UK)
	161	X-3949-477-1 CABINET (R) (955) ASSY (TRV310:TW)	161	X-3949-477-4 CABINET (R) (955) ASSY (TRV310:TW)
	6-1-7. LCD BLOCK ASSEMBLY (3.0/3.5 INCH LCD MODEL) (TRV203/TRV210/TRV210E/TRV310/TRV310E/TRV310P/TRV315)			
6-7	315	A-7073-957-A PD-106 (CAN) BOARD, COMPLETE (TRV310/TRV310P)	315	A-7073-957-A PD-106 (CAN) BOARD, COMPLETE (TYPE C)(TRV310/TRV310P)
	315	A-7073-975-A PD-106 (SHP) BOARD, COMPLETE (TRV310E)	315	A-7073-975-A PD-106 (SHP) BOARD, COMPLETE (TYPE S)(TRV310:US/TRV310E)
	<div>Note : For details of checking the TYPE C and TYPE S, refer to the adjustment section of page 5-38.</div>			
	6-2. ELECTRICAL PARTS LIST A-7073-957-A PD-106(CAN) BOARD, COMPLETE (TRV310/TRV310P) ***** A-7073-975-A PD-106(SHP) BOARD, COMPLETE (TRV310E) ***** (Ref.No.:1000 Series)		6-2. ELECTRICAL PARTS LIST A-7073-957-A PD-106(CAN) BOARD, COMPLETE (TYPE C)(TRV310/TRV310P) ***** A-7073-975-A PD-106(SHP) BOARD, COMPLETE (TYPE S)(TRV310:US/TRV310E) ***** (Ref.No.:1000 Series)	
6-21			<div>Note : For details of checking the TYPE C and TYPE S, refer to the adjustment section of page 5-38.</div>	

SONY®

SERVICE MANUAL

2001. 01

US Model
DCR-TRV103/TRV110/TRV210/TRV310/TRV315/TR7000
Canadian Model
DCR-TRV103/TRV110/TRV203/TRV210/TRV315/TR7000
E Model
DCR-TRV110/TRV110E/TRV110P/
TRV310/TRV310E/TRV310P
Hong Kong Model
DCR-TRV110/TRV110E/TRV310/TRV310E
AEP Model
DCR-TRV110E/TRV210E/TRV310E/
TR7000E/TR7100E
UK Model
DCR-TRV110E/TRV210E/TRV310E/TR7000E
Tourist Model
DCR-TRV110E/TRV310/TRV310E
Australian Model
DCR-TRV110E/TRV310E
Brazilian Model
DCR-TRV110
Chinese Model
DCR-TRV110E/TRV210E/TRV310E
East European Model
North European Model
Russian Model
DCR-TRV110E
Taiwan Model
DCR-TRV310

CORRECTION-2

Correct your service manual as shown below.

- Change of adjustment data.
- Change of the parts.

SECTION 5. ADJUSTMENTS

 : Changed portion.

Page	INCORRECT	CORRECT																																																												
5-16	<div>1-2-3. INITIALIZATION OF E, F PAGE DATA</div> <div>3. F Page table</div> <table><thead><tr><th rowspan="2">Address</th><th colspan="2">Initial value</th><th rowspan="2">Remark</th></tr><tr><th>NTSC</th><th>PAL</th></tr></thead><tbody><tr><td>5A</td><td>2A</td><td>2A</td><td rowspan="5">Flange back adj.</td></tr><tr><td>5B</td><td>00</td><td>00</td></tr><tr><td>5C</td><td>19</td><td>19</td></tr><tr><td>5D</td><td>00</td><td>00</td></tr><tr><td>5E</td><td>37</td><td>37</td></tr><tr><td>5F</td><td>52</td><td>52</td><td>Angular velocity sensor sensitivity</td></tr><tr><td>60</td><td>52</td><td>52</td><td>data check</td></tr></tbody></table>	Address	Initial value		Remark	NTSC	PAL	5A	2A	2A	Flange back adj.	5B	00	00	5C	19	19	5D	00	00	5E	37	37	5F	52	52	Angular velocity sensor sensitivity	60	52	52	data check	<div>1-2-3. INITIALIZATION OF E, F PAGE DATA</div> <div>3. F Page table</div> <table><thead><tr><th rowspan="2">Address</th><th colspan="2">Initial value</th><th rowspan="2">Remark</th></tr><tr><th>NTSC</th><th>PAL</th></tr></thead><tbody><tr><td>5A</td><td>2A</td><td>2A</td><td rowspan="5">Flange back adj.</td></tr><tr><td>5B</td><td>00</td><td>00</td></tr><tr><td>5C</td><td>19</td><td>19</td></tr><tr><td>5D</td><td>00</td><td>00</td></tr><tr><td>5E</td><td><u>37</u></td><td><u>37</u></td></tr><tr><td>5F</td><td>82</td><td>82</td><td>Angular velocity sensor sensitivity</td></tr><tr><td>60</td><td>80</td><td>80</td><td>data check</td></tr></tbody></table>	Address	Initial value		Remark	NTSC	PAL	5A	2A	2A	Flange back adj.	5B	00	00	5C	19	19	5D	00	00	5E	<u>37</u>	<u>37</u>	5F	82	82	Angular velocity sensor sensitivity	60	80	80	data check
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5-30	<div>1-3. CAMERA SYSTEM ADJUSTMENTS</div> <div>12. Angular Velocity Sensor Sensitivity Data check</div> <table><tr><td>Adjustment Page</td><td>F</td></tr><tr><td>Adjustment Address</td><td>5F, 60</td></tr></table> <div>Adjusting method:</div> <div>1) Select page: 0, address: 01, and set data: 01.</div> <div>2) Select page: F, address: 5F and check that the data is “52”.</div> <div>3) Select page: F, address: 60 and check that the data is “52”.</div>	Adjustment Page	F	Adjustment Address	5F, 60	<div>1-3. CAMERA SYSTEM ADJUSTMENTS</div> <div>12. Angular Velocity Sensor Sensitivity Data check</div> <table><tr><td>Adjustment Page</td><td>F</td></tr><tr><td>Adjustment Address</td><td>5F, 60</td></tr></table> <div>Adjusting method:</div> <div>1) Select page: 0, address: 01, and set data: 01.</div> <div>2) Select page: F, address: 5F and check that the data is “82”.</div> <div>3) Select page: F, address: 60 and check that the data is “80”.</div>	Adjustment Page	F	Adjustment Address	5F, 60																																																				
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Page

INCORRECT

5-77

6. Record of Use Check

Page 2

Address A2 to AA

Address	Function		Remarks
A2	Drum rotation	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)
A3	counted time	Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
A4	(BCD code)	Minute	

5-78E

6. Record of Use Check

Page 2

Address A2 to AA

Address	Function		Remarks
A2	Drum rotation	Minute	
A3	counted time	Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
A4	(BCD code)	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)

5-78E

8. Switch check (2)

Address	Data						
	00 to 0C	0D to 24	25 to 3F	40 to 5D	5E to 81	82 to AA	AB to D7
64 (KEY AD4) (IC801 97)			EXPOSURE (CF-62/63/65 board) (S012)	BACK LIGHT (CF-62/63/65 board) (S017)	FADER (CF-62/63/65 board) (S027)	FOCUS INFINITY (PS-9500 block)	FOCUS AUTO (PS-9500 block)
65 (KEY AD5) (IC801 98)	DATA CODE (CF-62/63/65 board) (S003)		END SEARCH (CF-62/63 board) (S013)	SELF TIMER (CF-62/63 board) (S018)	DISPLAY (CF-62/63 board) (S022)		+SLOW SHUTTER (FP-62 flexible)

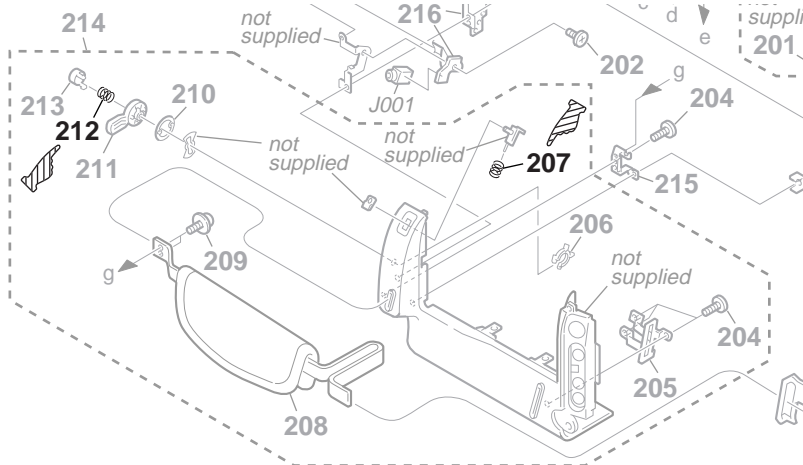



5-78E

8. Switch check (2)

Address	Data						
	00 to 0C	0D to 24	25 to 3F	40 to 5D	5E to 81	82 to AA	AB to D7
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SECTION 6. REPAIR PARTS LIST
6-1. EXPLODED VIEWS

 : Changed portion.

Page	INCORRECT	CORRECT																																																							
6-5	6-1-5. CABINET (L) BLOCK AND MAIN BOARDS ASSEMBLY																																																								
																																																									
	<table> <tr> <th>Ref. No.</th><th>Part No.</th><th>Description</th><th>Remarks</th></tr> <tr> <td>207</td><td>3-979-642-01</td><td>SPRING, COMPRESSION</td><td></td></tr> <tr> <td>208</td><td>3-052-815-01</td><td>BELT (ES), GRIP</td><td></td></tr> <tr> <td>209</td><td>3-679-362-11</td><td>SCREW</td><td></td></tr> <tr> <td>210</td><td>3-970-854-01</td><td>SPRING, STAND-BY</td><td></td></tr> <tr> <td>211</td><td>3-969-081-01</td><td>KNOB, STAND-BY</td><td></td></tr> <tr> <td>212</td><td>3-302-492-00</td><td>SPRING, COMPRESSION</td><td></td></tr> </table>	Ref. No.	Part No.	Description	Remarks	207	3-979-642-01	SPRING, COMPRESSION		208	3-052-815-01	BELT (ES), GRIP		209	3-679-362-11	SCREW		210	3-970-854-01	SPRING, STAND-BY		211	3-969-081-01	KNOB, STAND-BY		212	3-302-492-00	SPRING, COMPRESSION		<table> <tr> <th>Ref. No.</th><th>Part No.</th><th>Description</th><th>Remarks</th></tr> <tr> <td>207</td><td>3-979-642-01</td><td>SPRING, COMPRESSION</td><td></td></tr> <tr> <td>208</td><td> 3-052-815-01</td><td>BELT (ES), GRIP</td><td></td></tr> <tr> <td>209</td><td>3-679-362-11</td><td>SCREW</td><td></td></tr> <tr> <td>210</td><td>3-970-854-01</td><td>SPRING, STAND-BY</td><td></td></tr> <tr> <td>211</td><td>3-969-081-01</td><td>KNOB, STAND-BY</td><td></td></tr> <tr> <td>212</td><td>3-979-642-01</td><td>SPRING, COMPRESSION</td><td></td></tr> </table>	Ref. No.	Part No.	Description	Remarks	207	3-979-642-01	SPRING, COMPRESSION		208	 3-052-815-01	BELT (ES), GRIP		209	3-679-362-11	SCREW		210	3-970-854-01	SPRING, STAND-BY		211	3-969-081-01	KNOB, STAND-BY		212	3-979-642-01	SPRING, COMPRESSION
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**DCR-TRV103/TRV110/TRV110E/TRV110P/TRV203/TRV210/
TRV210E/TRV310/TRV310E/TRV310P/TRV315
DCR-TR7000/TR7000E/TR7100E**

Sony Corporation

Personal VIDEO Products Company

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Revision History

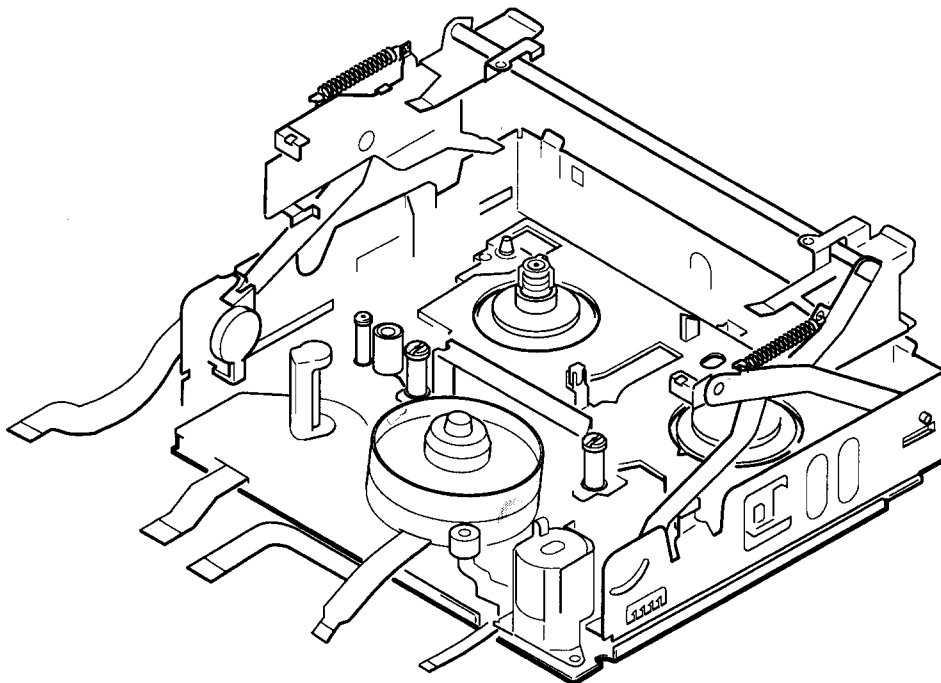
Ver.	Date	History	Contents	S.M. Rev. issued
1.0	1999.02	Official Release	—	—
1.1	1999.06	Supplement-1	Part number suffix of VC-213 board is changed to 13. (C152, C408 and R434 are added as the suffix is changed.) Change of the repair part supply.	Yes
		Correction-1	Change of adjustment data. Correction of Note for simultaneous Replacement of Parts. S.M. correction: Page 5-22, 5-61, 6-2, 6-3, 6-4, 6-7, 6-9, 6-11, 6-14, 6-42	
1.2	1999.12	Supplement-2/ Correction	TYPE S is added to the 3.5 LCD panel. Target model : DCR-TRV310 (US model) HP jack is changed from “ not supplied ” to a repair part for service. Correction of repair part supply. S.M. correction: Page 6-7, 6-42, 6-43	Yes
1.3	2001.01	Correction-2	Change of adjustment data. Change of the parts. S.M. correction: Page 5-16, 5-30, 5-77, 5-78, 6-5	Yes

8mm Video MECHANICAL ADJUSTMENT MANUAL VII

B MECHANISM

Video8

Use this mechanical adjustment manual VII together with the service manual of the respective models.



MC-Service

8 MECHANISM DECK
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For the mode selector operation, schematic diagram
and parts list, refer to the Supplement-1 Manual.

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the "DISASSEMBLY" section of the service manual of the respective models.

To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.

The mechanisms are adjusted while set in the **USE** mode of operation. (Refer to the "Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the **USE** mode.)

1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

- 1) Set the mechanism to **USE** mode.
- 2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
- 3) Remove the claws **A** and **B** of the Damper Assy **①** from the chassis.
- 4) Remove the washer **②** from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.

- 5) Remove the shaft of the arm from the slot **C** of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
- 6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow **D**, and remove the arm shaft of the Cassette Compartment from the LS Chassis **④** near the Reel Tables. Remove the Cassette Compartment Assy **③** in the direction of the arrow **E**.

2. Precautions During Re-Assembling

- 1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
- 2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
- 3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)

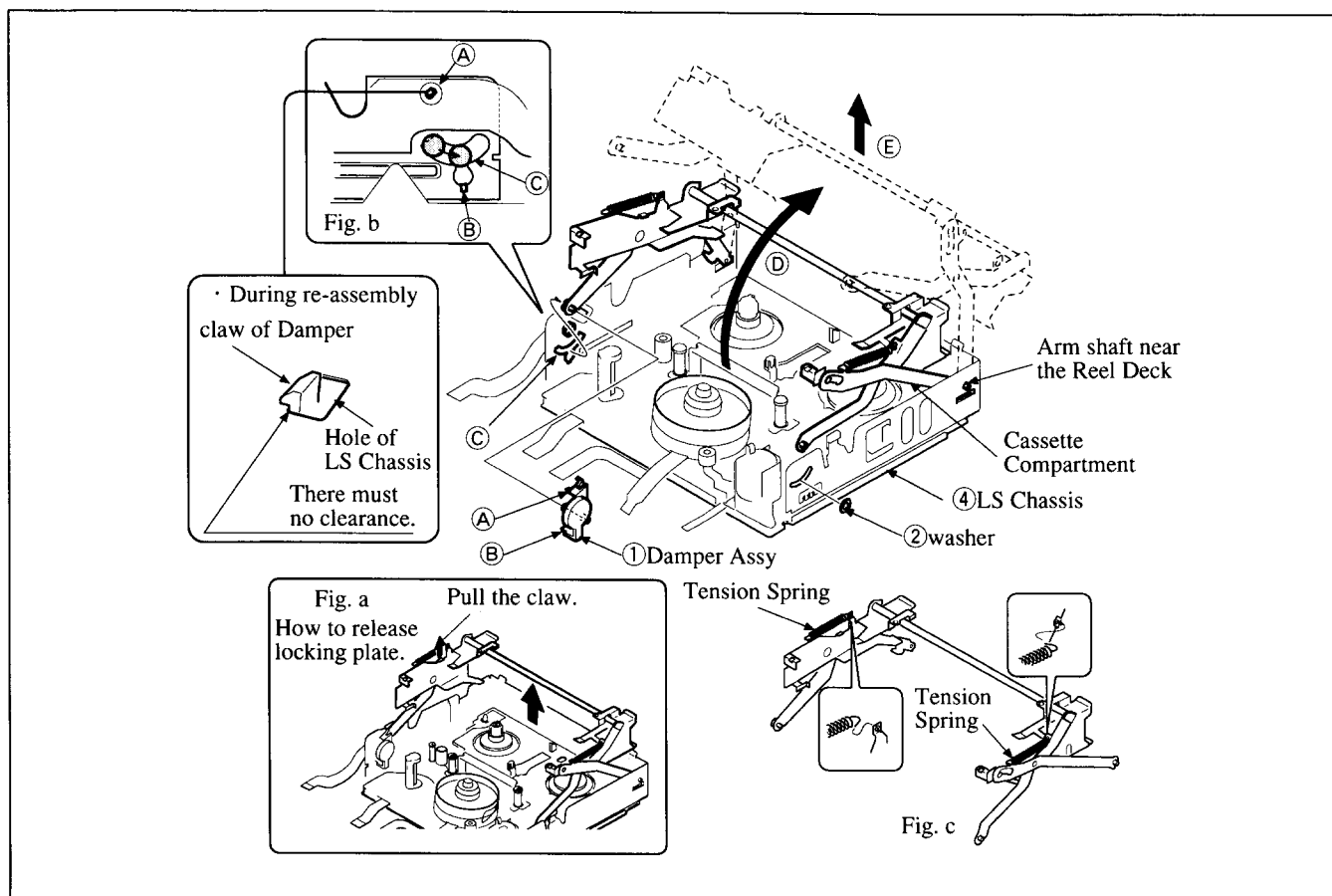


Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

- 1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
- 2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

Example of establishing the TEST mode: model CCD-TR420E/TR440E.

Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection.

Select page: 7, address: 01, set data: 01 and press the PAUSE button.

After tape loading or other desired operations of mechanism are completed, be sure to perform the following:

Select page: F, address: 01, set data :00 and press the PAUSE button.

Select page: 6, address: 00, set data: 00 and press the PAUSE button.

- 3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

- 1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
- 2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
- 3) Set the RECORD switch to ON.
(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

- 1) Press the EJECT switch to ON.

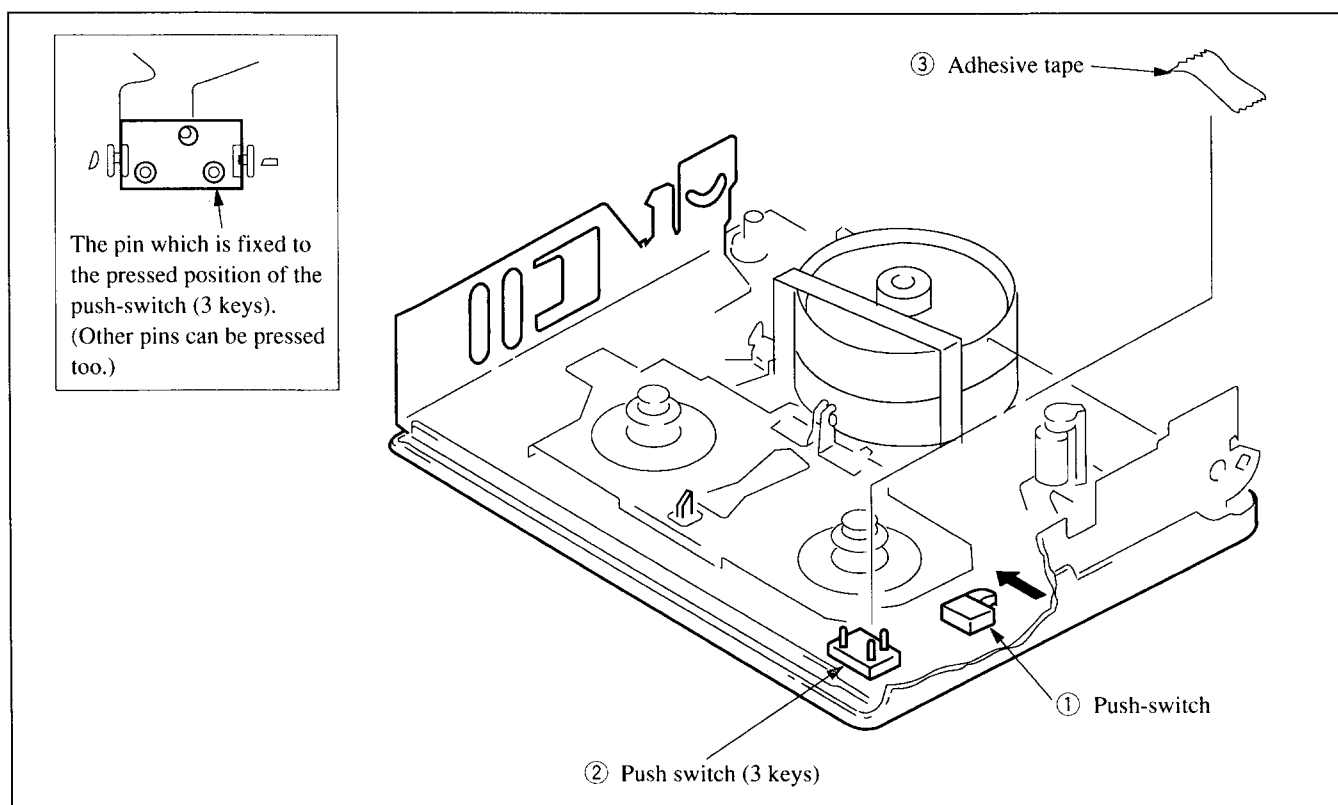


Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

- 1) Set the mechanism to **USE** mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

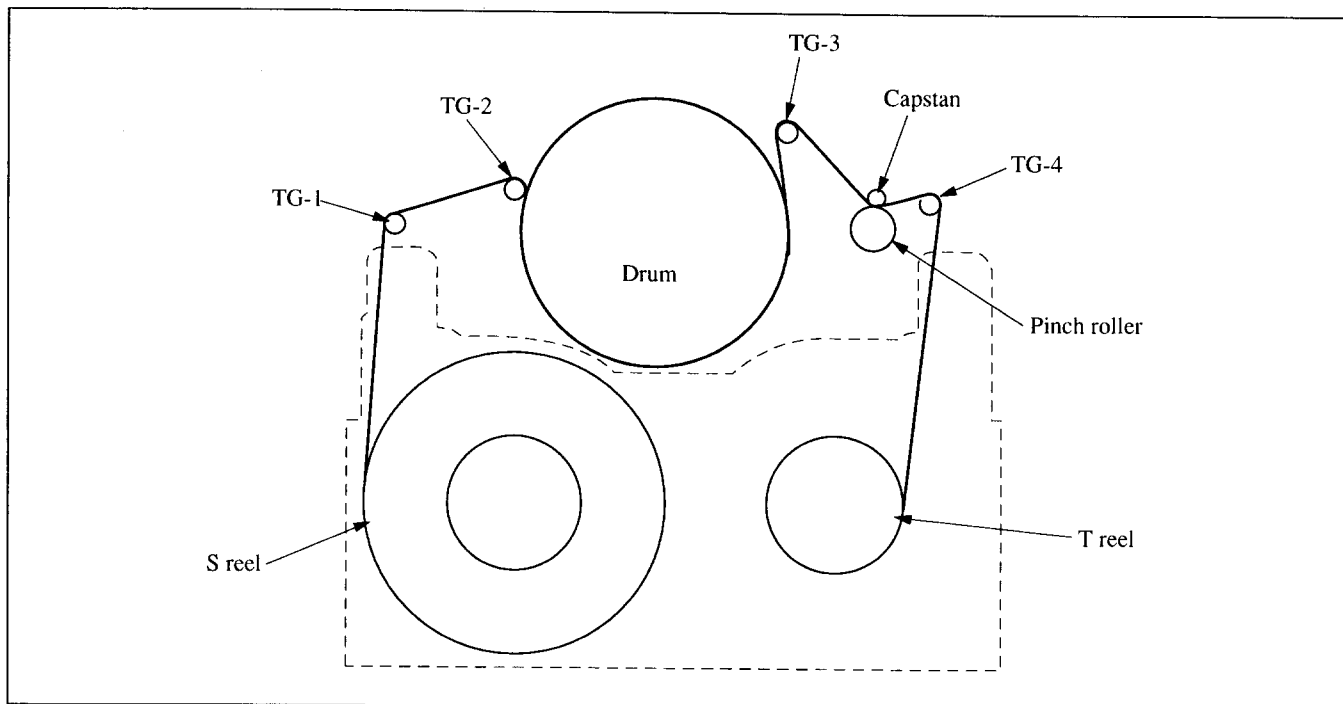


Fig. 3

2-3. Periodic Check Items

Maintenance and Inspection Points		Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
Drive System	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
Performance Check	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	X-3945-401-1
	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD } Torque RVS } Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil

- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)

Oil: Sony part No. 7-661-018-18

(Mitsubishi diamond oil hydro fluid NT-68)

- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

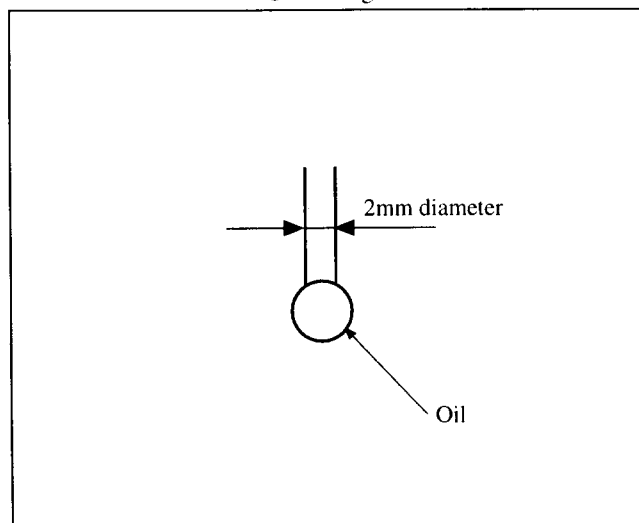



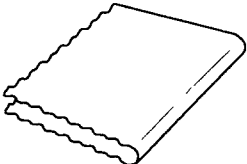
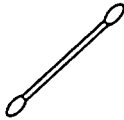
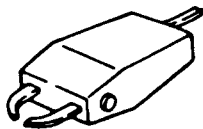
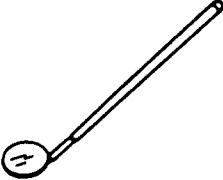
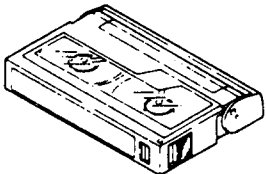
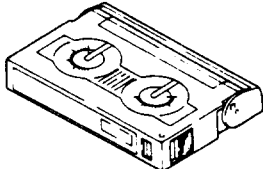
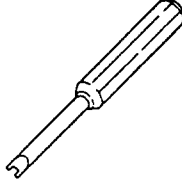
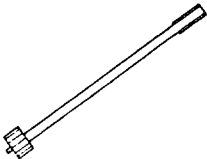
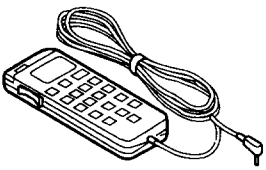
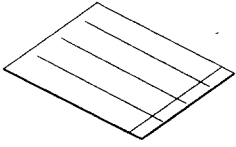
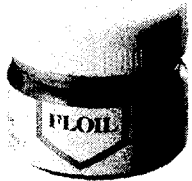

Fig. 4

2-4. Service Tool List

Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	—	
J-2	Cleaning piece	2-034-697-00	—	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		—	
J-4	Head demagnetizer	Commercially available	—	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	—	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	—	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	—	
J-10	Remote commander for adjustment	J-6082-053-B	—	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	—	
J-12	FLOIL Grease SG-941	7-662-001-39	—	
J-13	FLOIL Grease SG-055G	7-651-000-09	—	

Other equipment

- Oscilloscope
- Analog circuit tester (input impedance 20 kΩ)

J-1 	J-2 	J-3 	J-4 
J-5 	J-6 	J-7 	J-8 
J-9 	J-10 	J-11 	J-12 
J-13 			

3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

- 1) Remove the Torsion Spring ① from the cut-out ④ of the motor holder. Hook it to the claw ⑤ of the HC Arm.
- 2) Remove the HC Roller Block Assy in the direction shown by ③.
- 3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

- 1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to ④ and ⑤.
- 2) Align the block so that the cut-out ⑥ agrees with the rib ⑦.

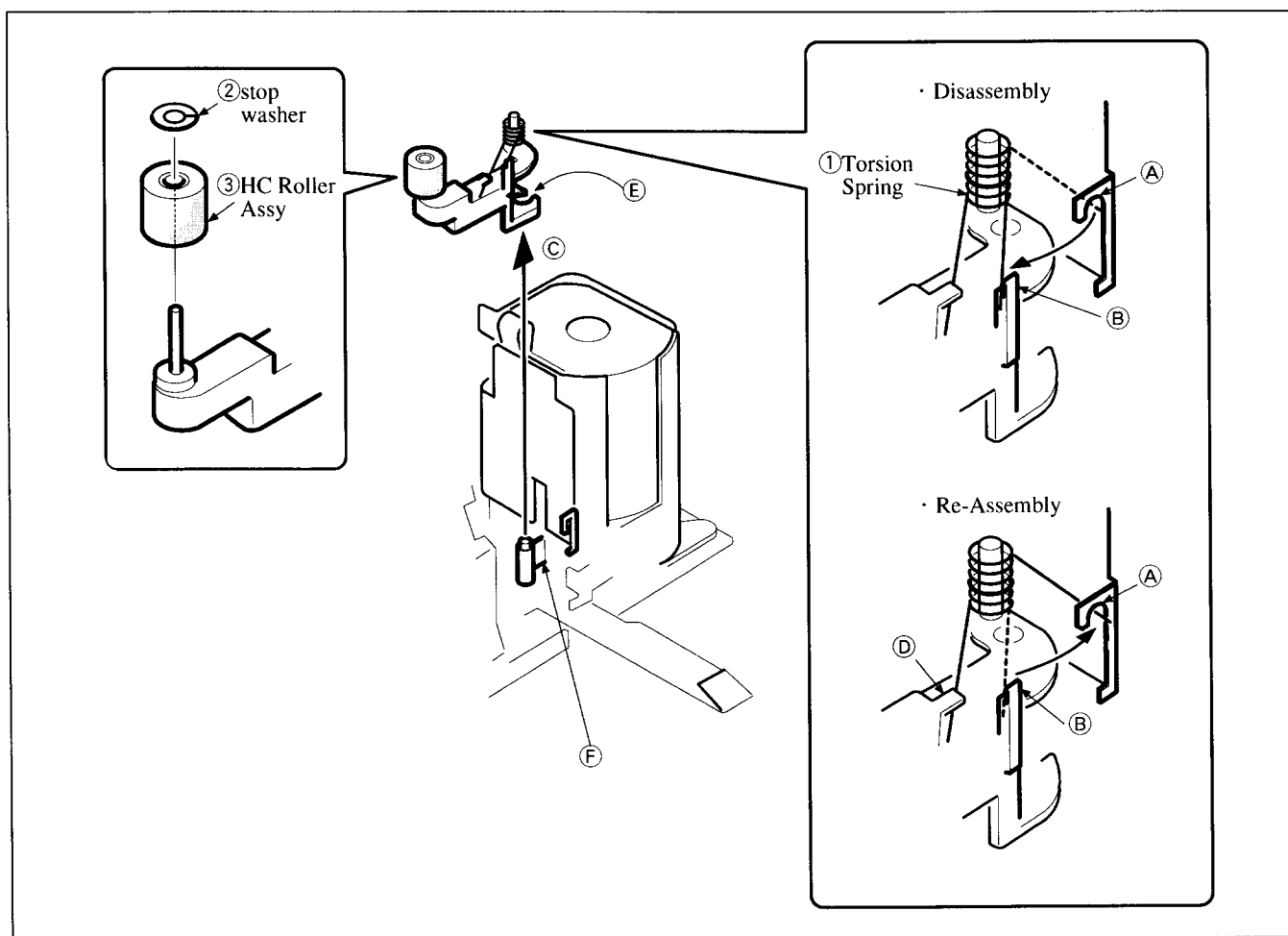


Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

- 1) Set the mechanism to **USE** mode.
- 2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions ① and ② of the drum assy.)

2. Precautions During Re-Assembly

- 1) Be careful not to touch the outer circumference of the drum. (Hold the portions ① and ② of the drum assy.)
- 2) When tightening the three screws (M 1.4), tighten them in the order ③, then ④, then ⑤.
- 3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

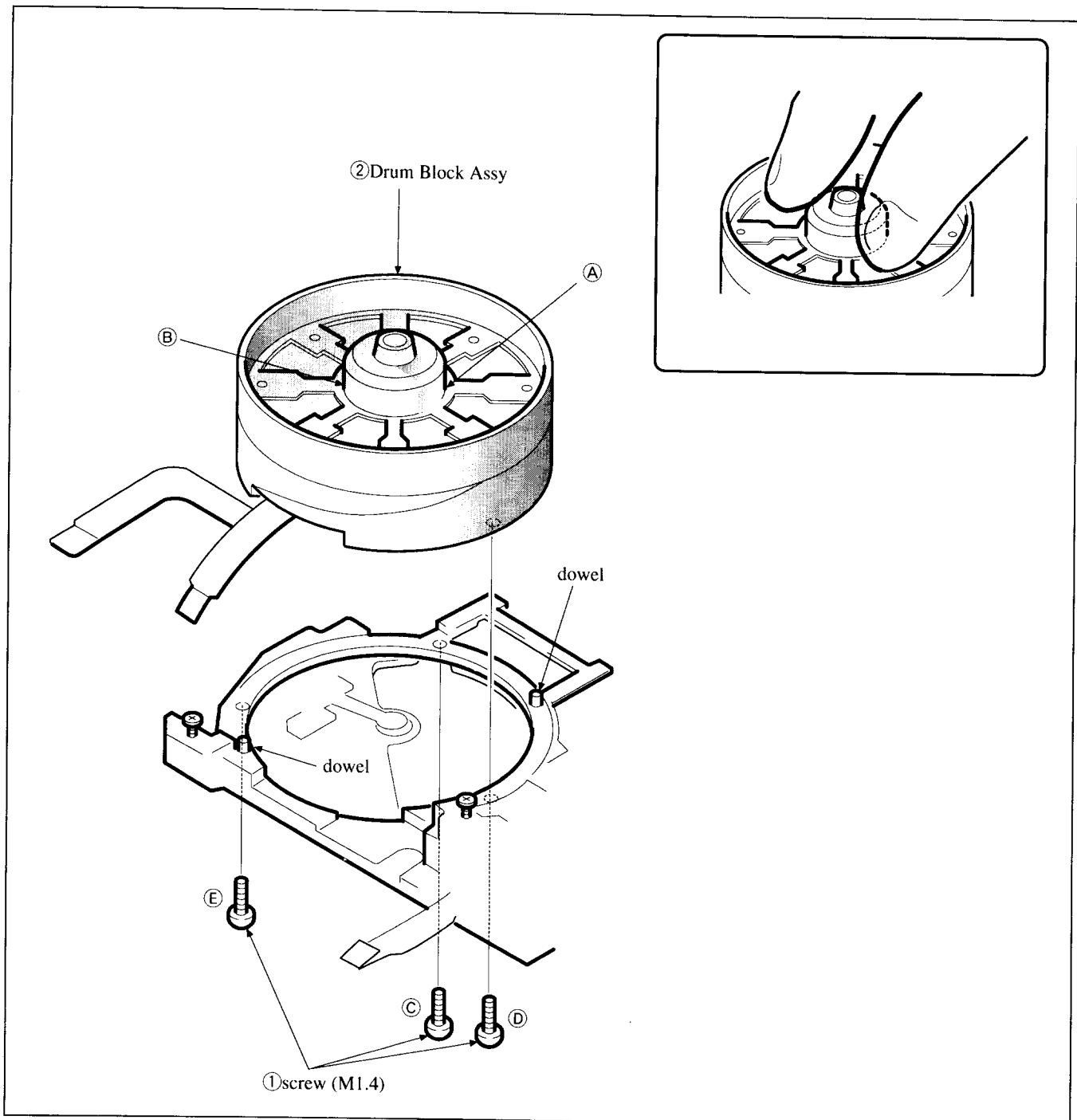


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

- 1) Remove the Drum Assy referring to section 3-2.
- 2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
- 3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

2. Precautions During Re-Assembly

- 1) Do not touch the spring portion of the Shaft Ground ④.
- 2) When tightening the three screws (M 1.4×2.5), tighten them in the order of ①, then ②, then ③.
- 3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

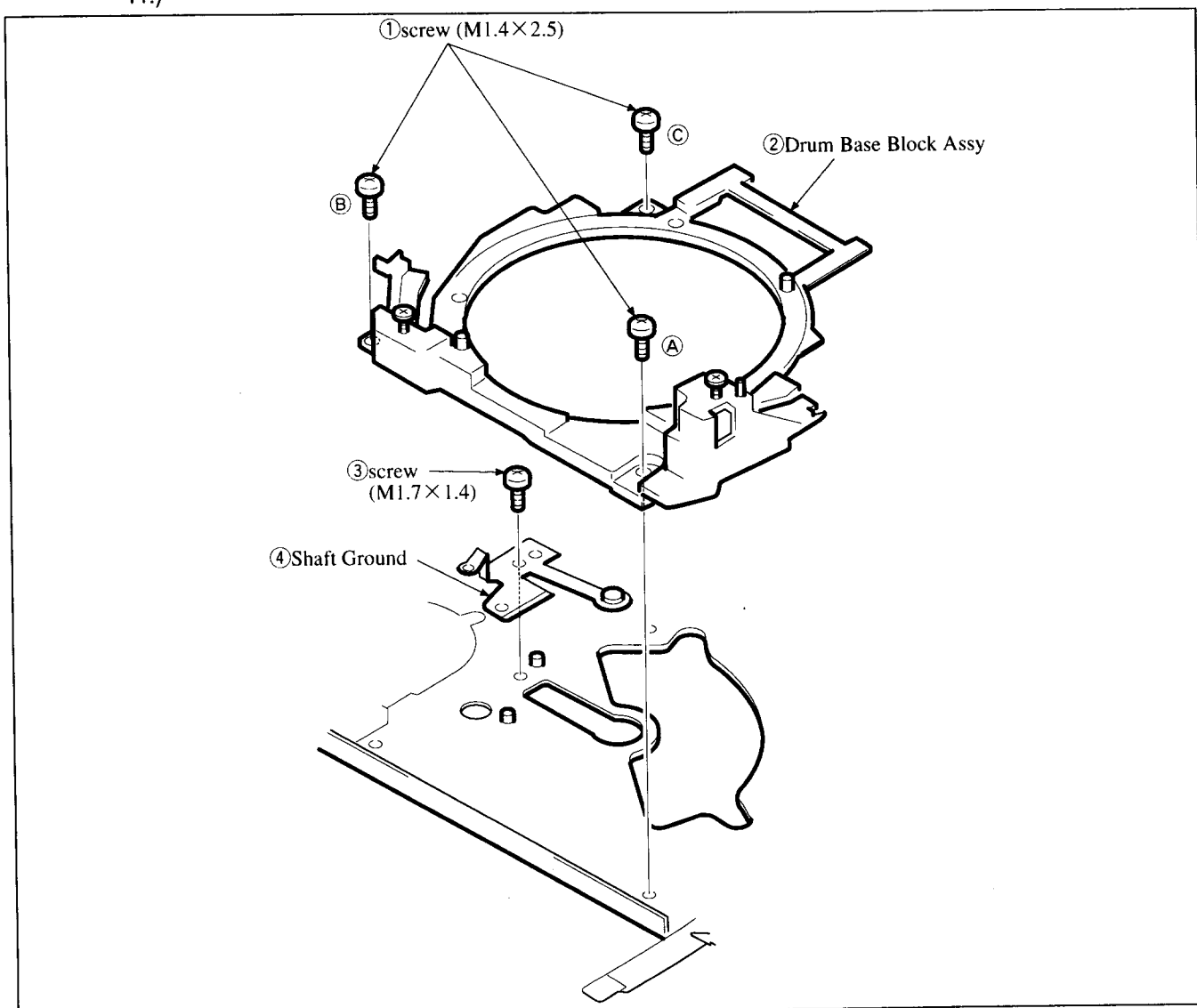


Fig. 7

3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
(Turn the flexible board 90° outside and remove it upward.)
- 3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
- 4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

- 1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
- 2) Hook the T-side claw on the guide.

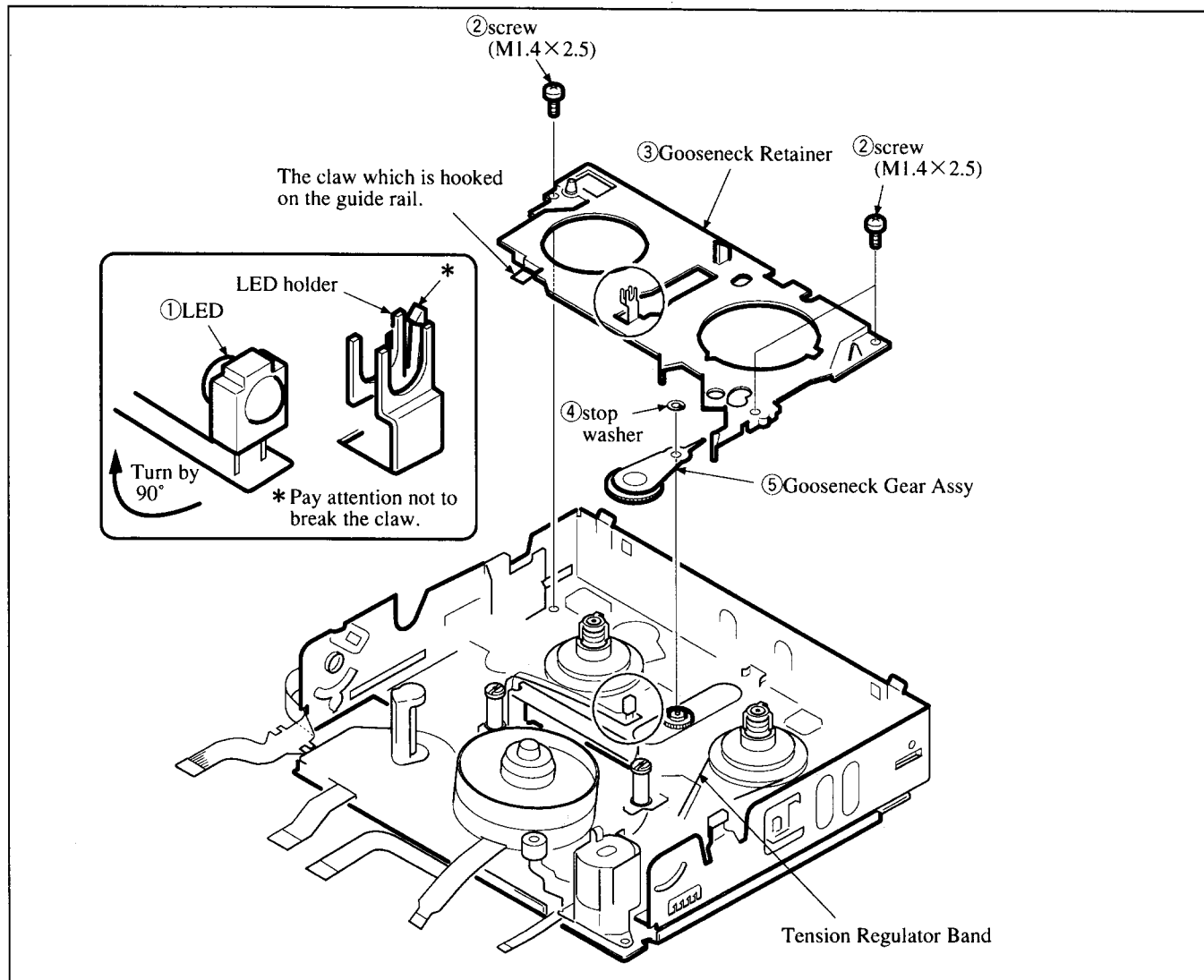


Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the FP-221 flexible board ① from the flexible board holder.
- 4) Remove the stop ring E1.5 ②.
- 5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow ⑥.

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

- 1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
- 2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
- 3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
- 4) Pay attention that the TG-1 Arm is not floated.

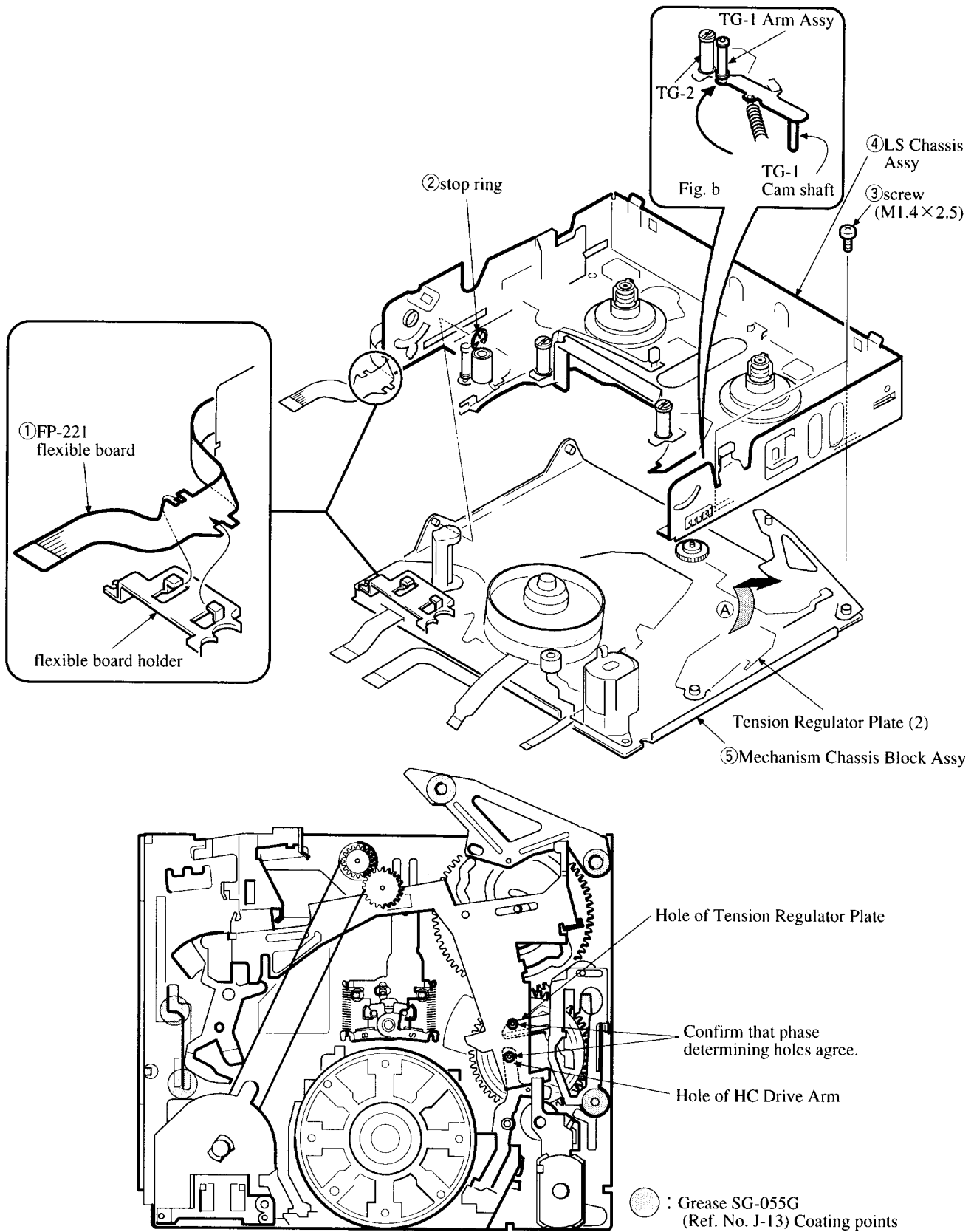


Fig. a

Fig. 9

• PARTS CONSTITUTING THE LS CHASSIS.

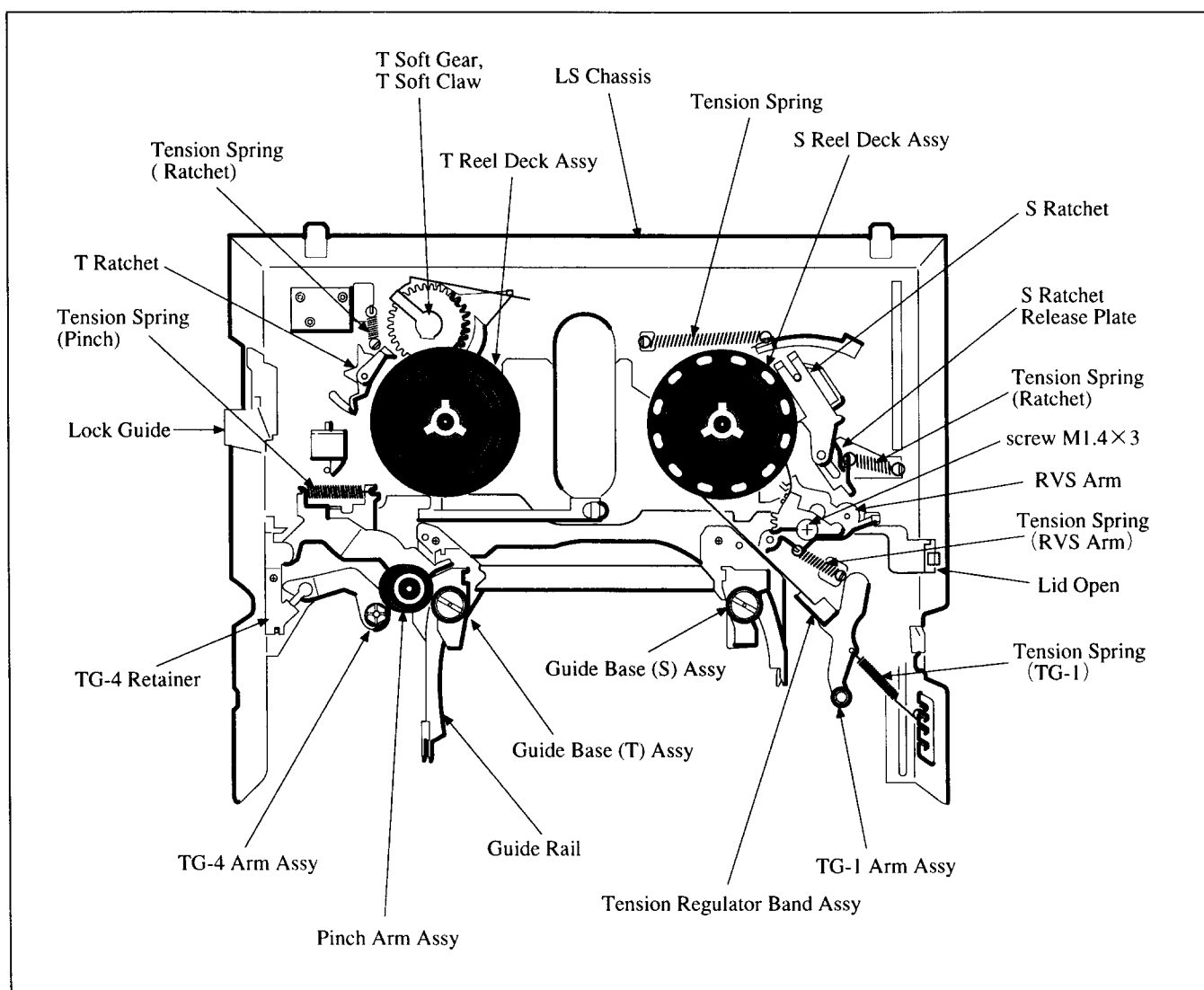


Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
- 4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow ① and remove it .
- 5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow ② and remove it .

2. Precautions During Re-Assembly

- 1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
- 2) Be careful not to deform the claw.

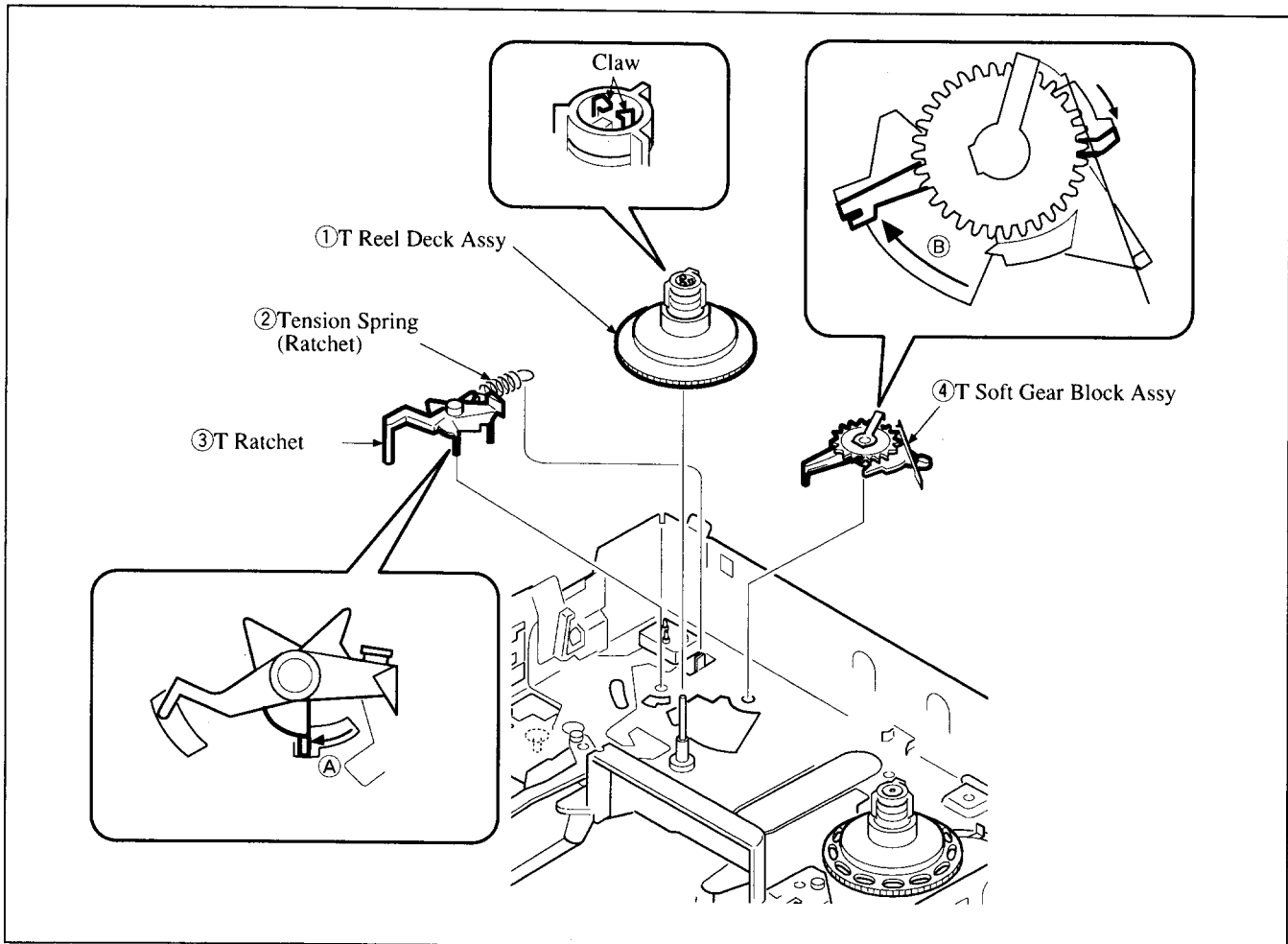


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the Tension Spring (TG1) ① from the LS Chassis.
- 4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ from RVS Arm.
- 5) Release the S Ratchet ⑥ in the direction of the arrow A and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
- 6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
- 7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
- 8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
- 9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
- 10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

- 1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
- 2) When attaching the Tension Regulator Band Assy, take care not to bend it.
- 3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
- 4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
- 5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
- 6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
- 7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
- 8) Confirm that the claw of the S Reel Deck Assy is not deformed.

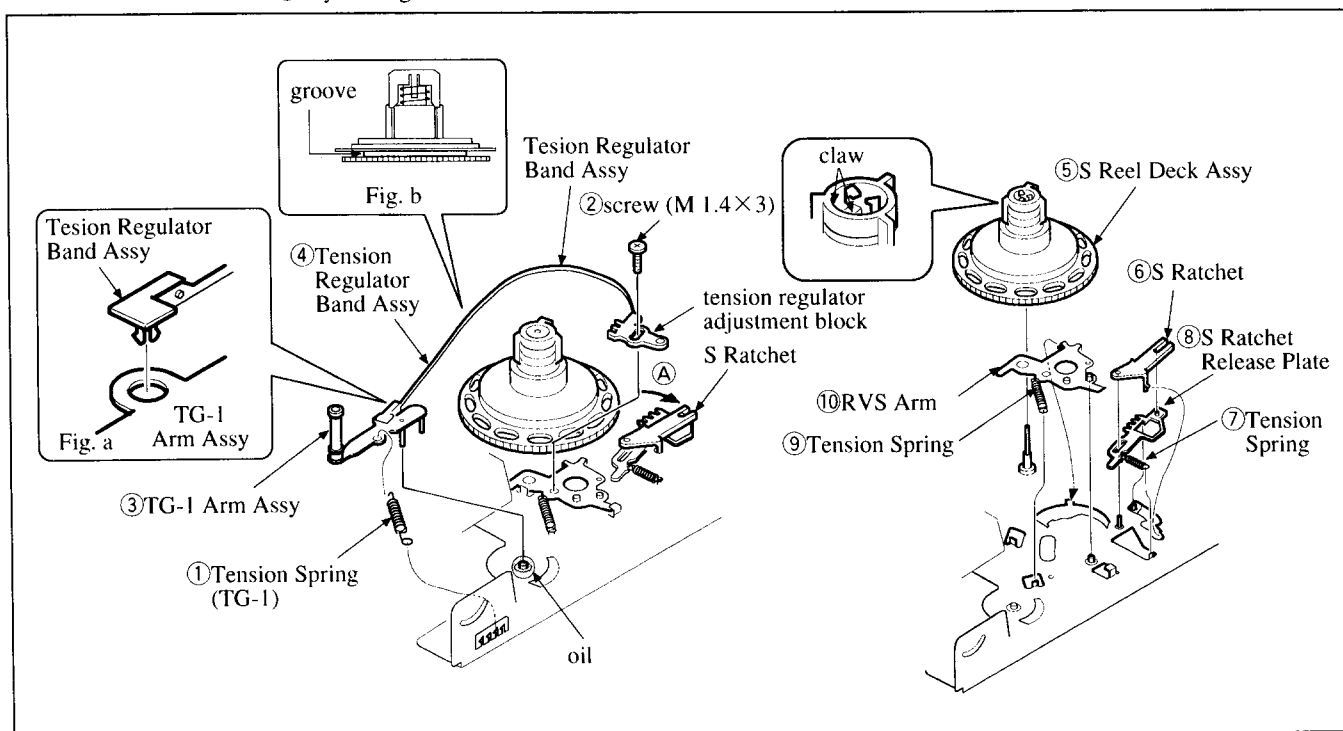


Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the LS Chassis Block Assy referring to section 3-5.
- 4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out (A) of the LS Chassis.
- 5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
- 6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
- 7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
- 8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of (A) then (B).

2. Precautions During Re-Assembly

- 1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
- 2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
- 3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

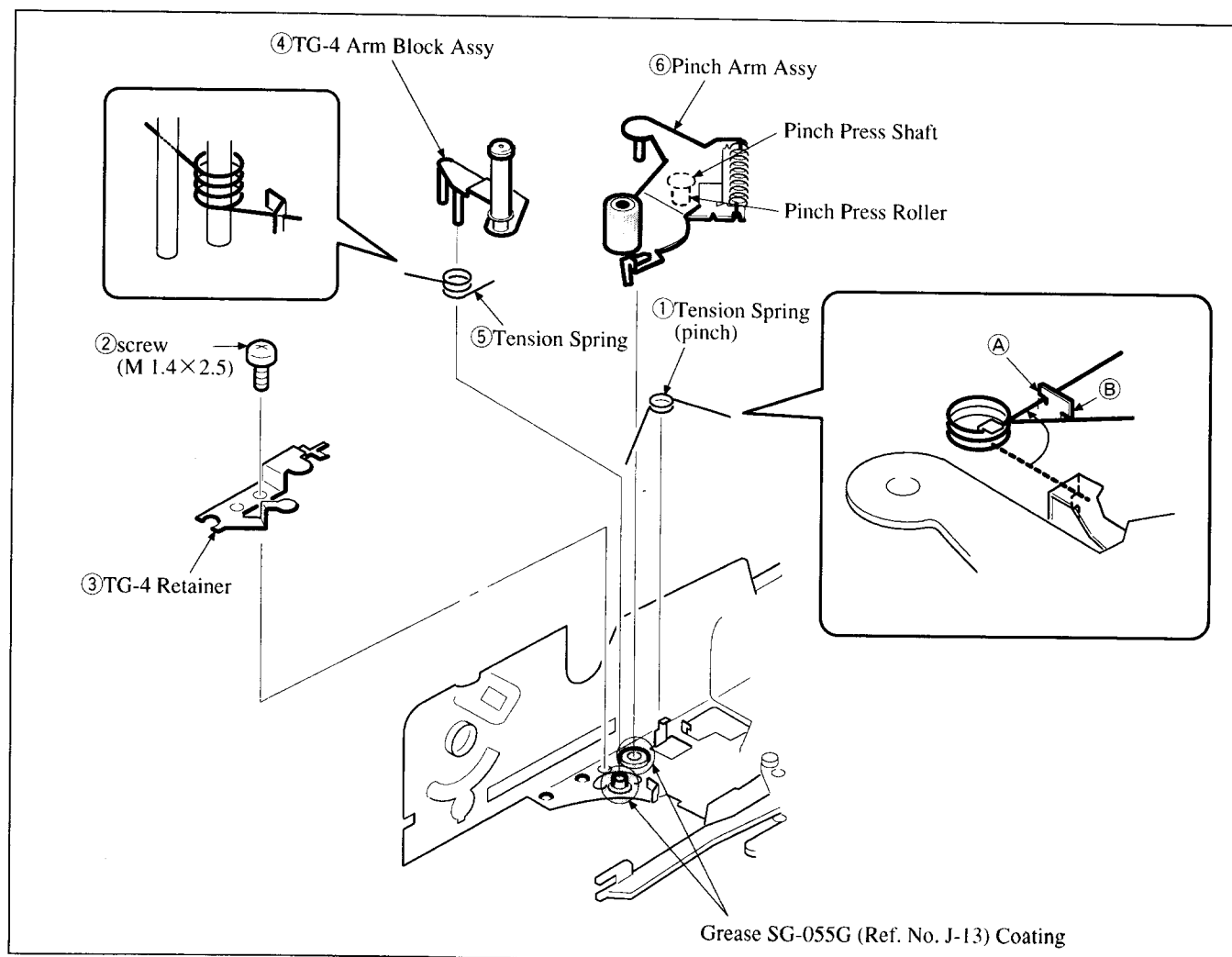


Fig. 13

3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide (Refer to Fig. 14)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
 - 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
 - 3) Remove the LS Chassis Block Assy referring to section 3-5.
 - 4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.
- In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.
- 5) Remove the LS Guide Cover ③.
 - 6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)

- 7) Remove the Lid Open ⑤ in the direction of the arrow ③ while pushing ⑥ portion.
- 8) Remove the EJ Arm ⑥. (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

- 1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
- 2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
- 3) If any mark is not written when removing the LS Cam Plate ②, adjust and attach it as shown in Fig. b.

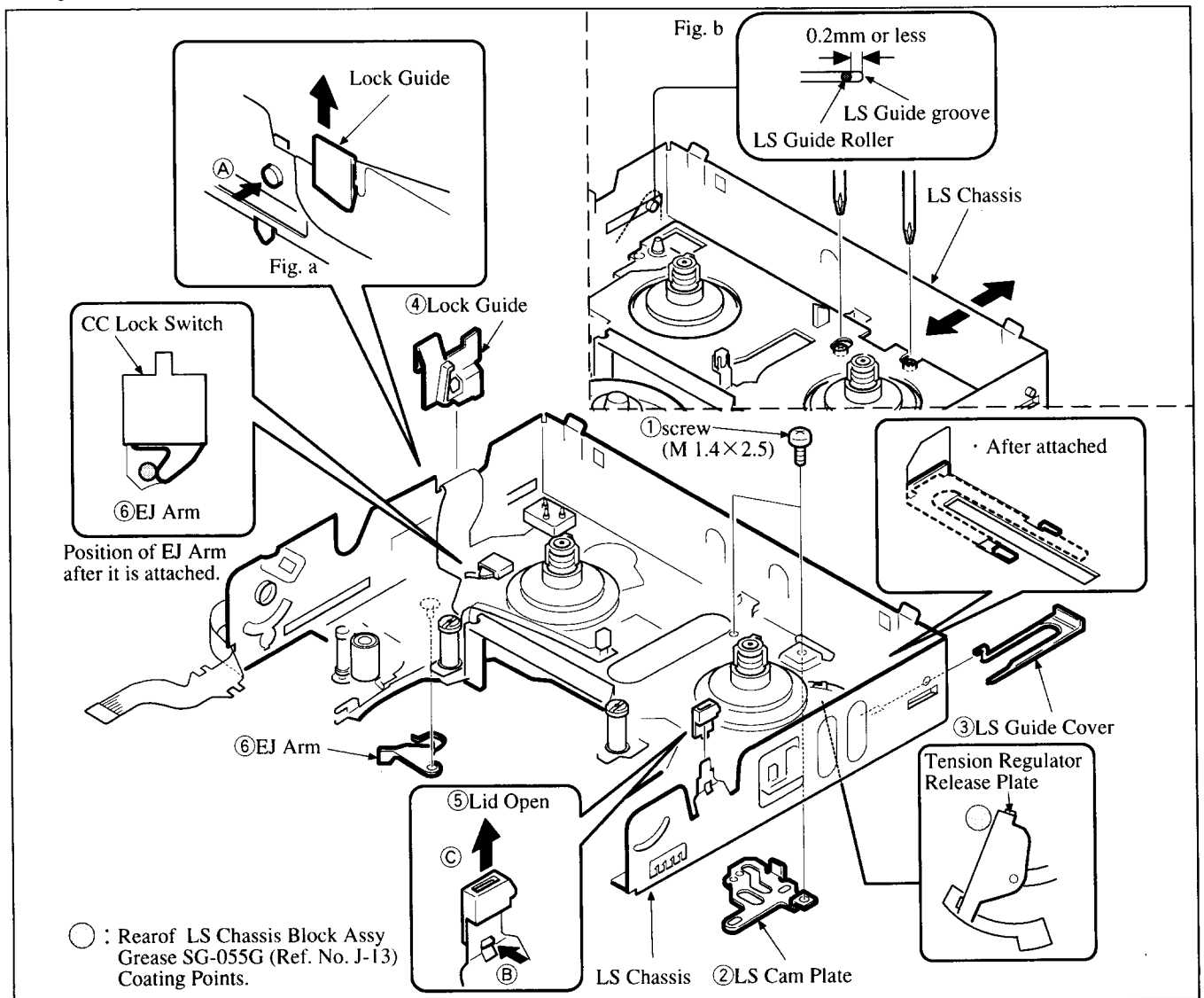


Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the LS Chassis Block Assy referring to section 3-5.
- 4) While pushing the GB Stoppers (S) and (T) in the direction of arrow (A), press the guide arm in the direction of the arrow (B), and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow (C) respectively, and remove them.
- 5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
- 6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

- 1) Pay attention not to deform the Guide Rail.
- 2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
- 3) Pay attention not to deform the Stoppers (S) and (T).
- 4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
- 5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

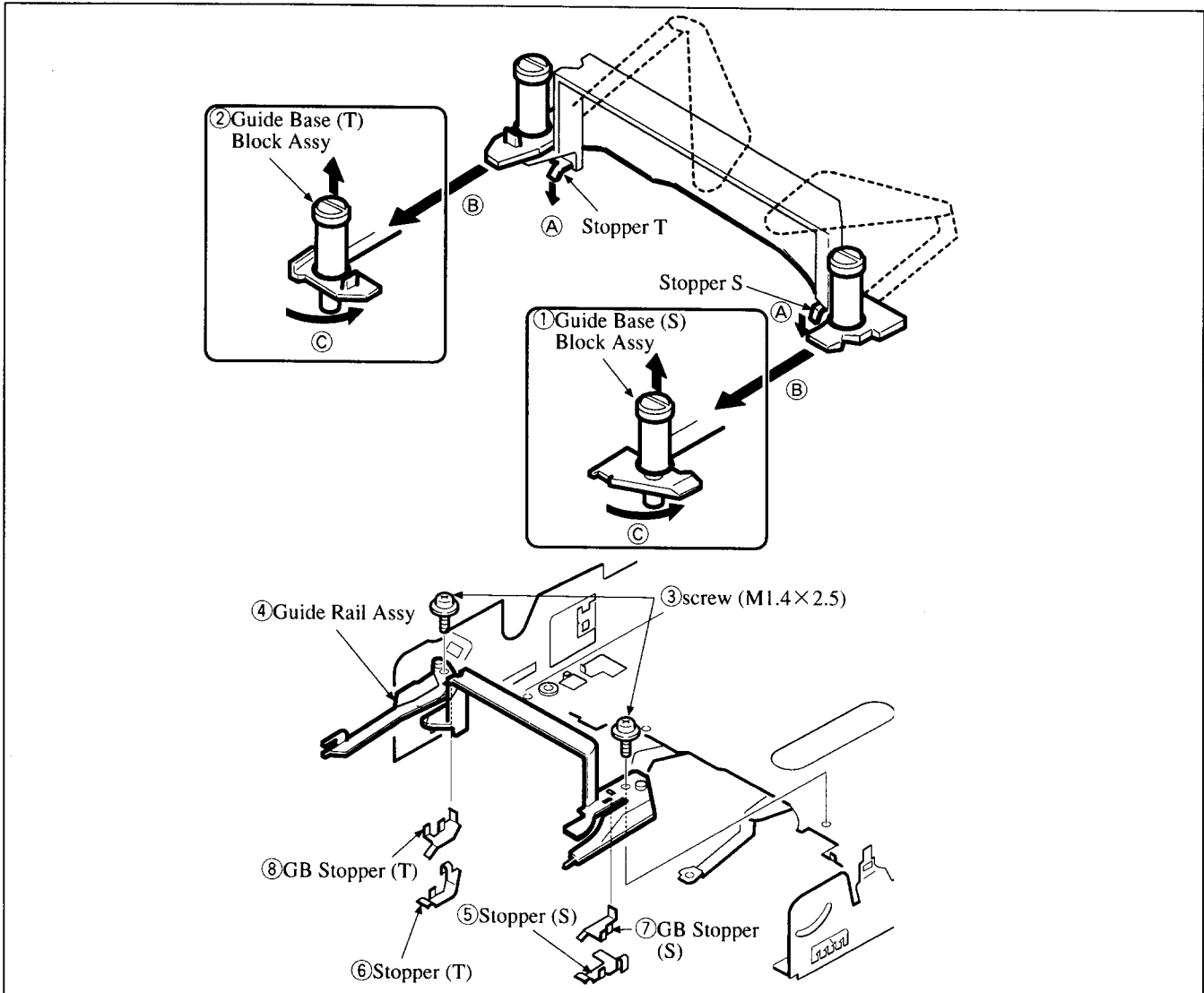


Fig. 15

• PARTS CONSTITUTING THE MECHANISM CHASSIS

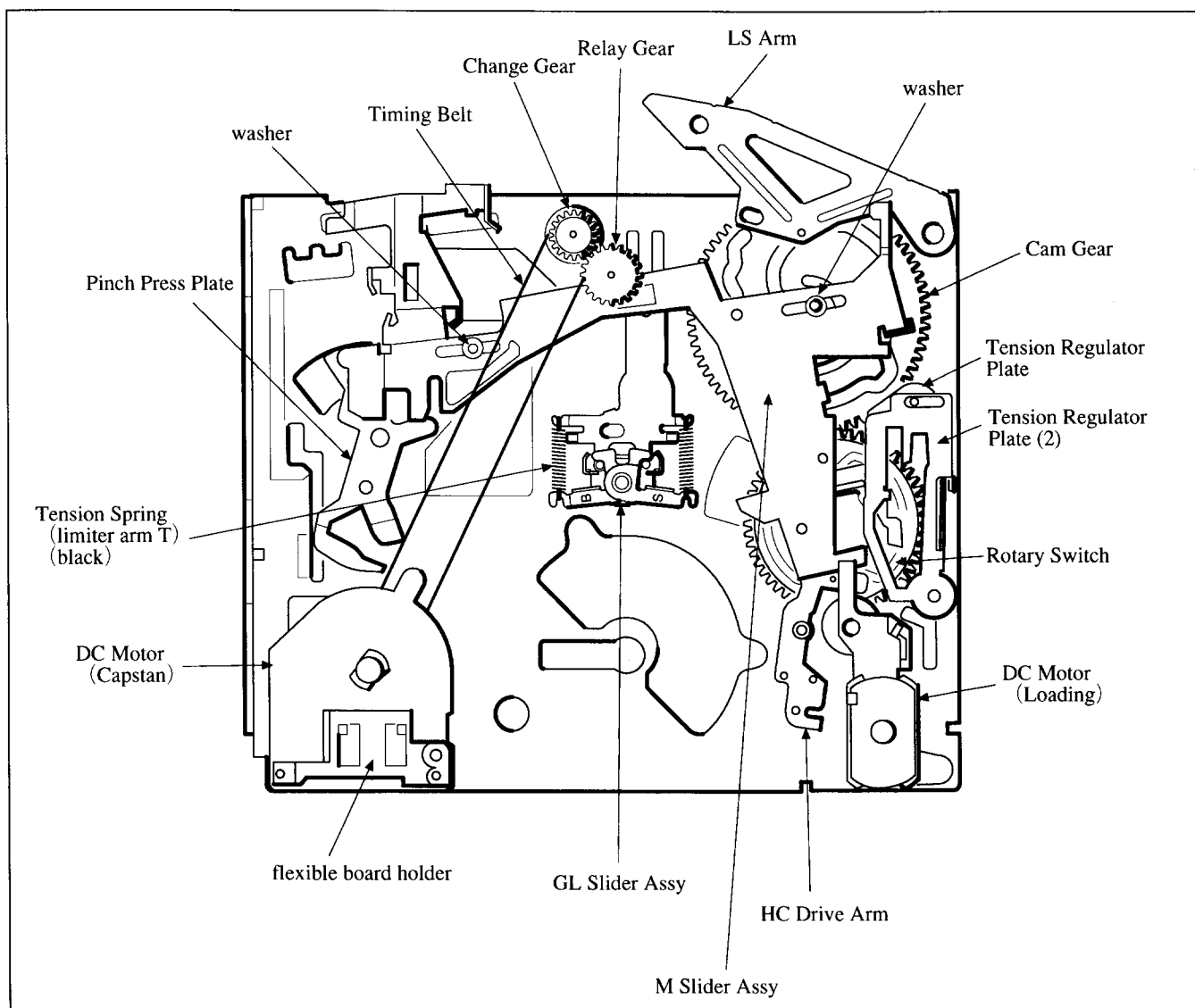


Fig.16

3-11. DC Motor Assy (Loading) (Refer to Fig. 17)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove soldering from the (A) portion.
- 8) Remove the screw (M 1.4×2.5) ① and remove the Motor Holder Block Assy ② from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow (B).
- 9) Remove the Motor Shield ③ in the direction of the arrow (C) (by opening the two ★ star marked points).
- 10) Release the claw on top of the Motor Holder ⑤ and remove the DC Motor Assy ④ in the direction of the arrow (D).
- 11) Remove the Motor Holder Sleeve ⑥, Gear A ⑦ and Worm Shaft ⑧ in this order.

2. Precautions During Re-Assembly

- 1) Before attaching the Gear A ⑥, coat the Retainer Shaft (E) with grease SG-055G (Ref. No. J-13).
- 2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
- 3) The HC Drive Arm is easy to drop. Confirm that it is attached referring to Fig. 19.

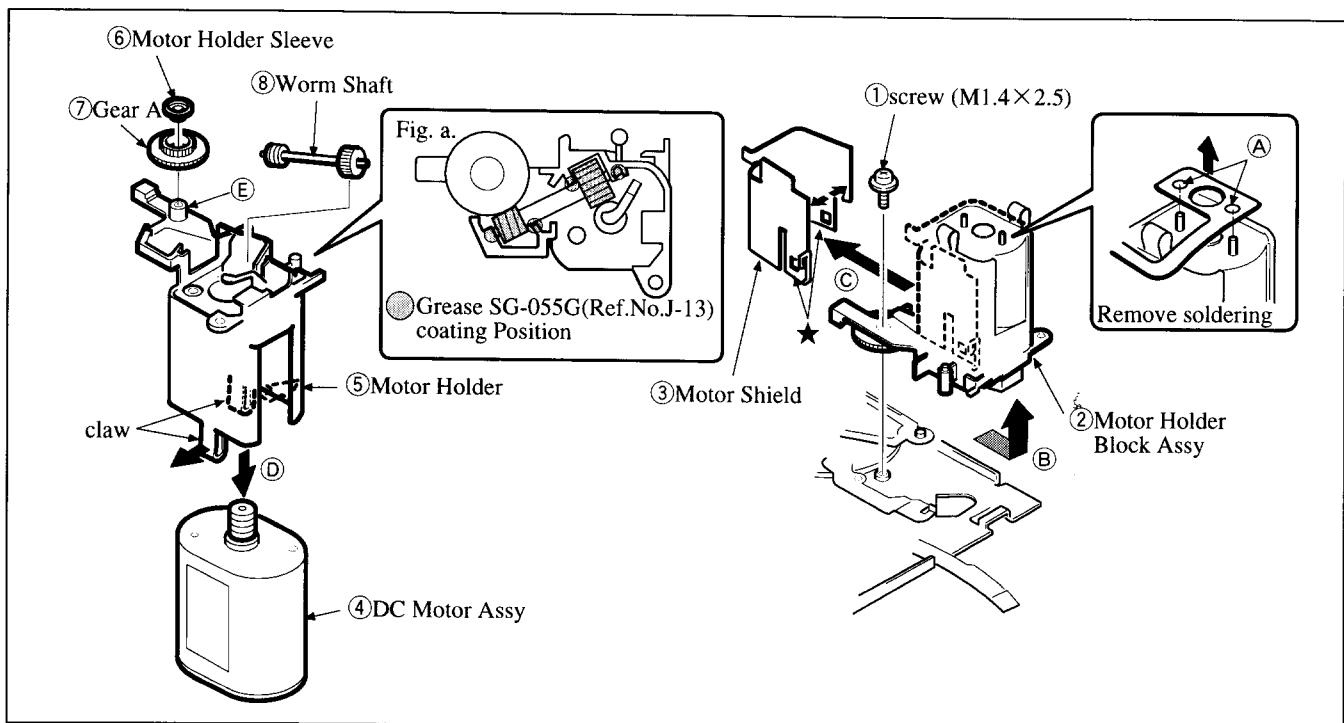


Fig. 17

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC motor referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2 ①.
- 9) Remove the Relay Gear ②.
- 10) Remove the two washers ③. Remove the M Slider Assy ④.

At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

- 1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft ① on the back of the M Slider Assy, the Pinch Press Plate Shaft ② and the mechanism chassis M Slider Axis ③ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
- 2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
- 3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk * Marked portion of Fig. a)
- 4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis ④ with grease SG-055G (Ref. No. J-13).

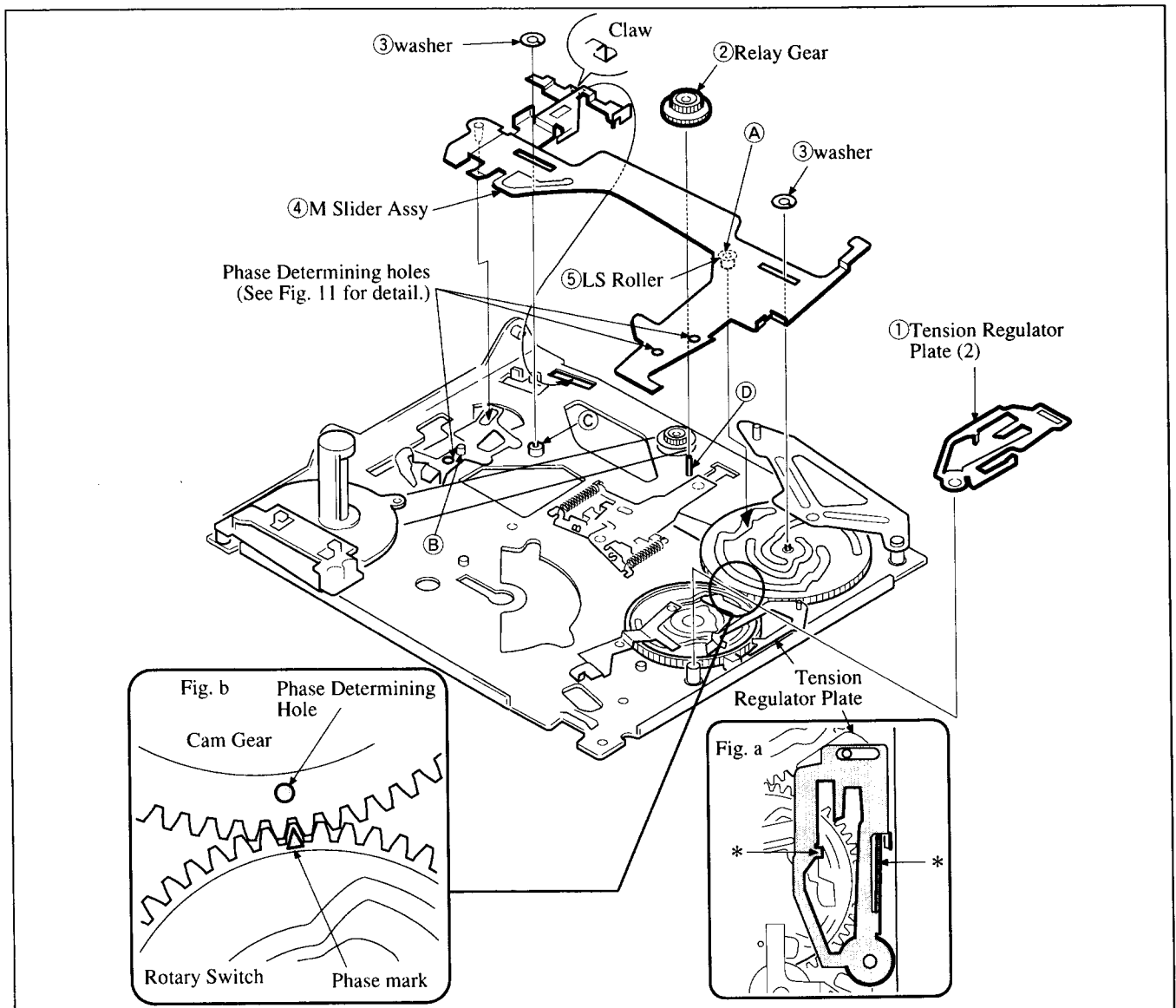


Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC Motor Assy referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
- 9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
- 10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

- 1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
- 2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
- 3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft (A). If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
- 4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
- 5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

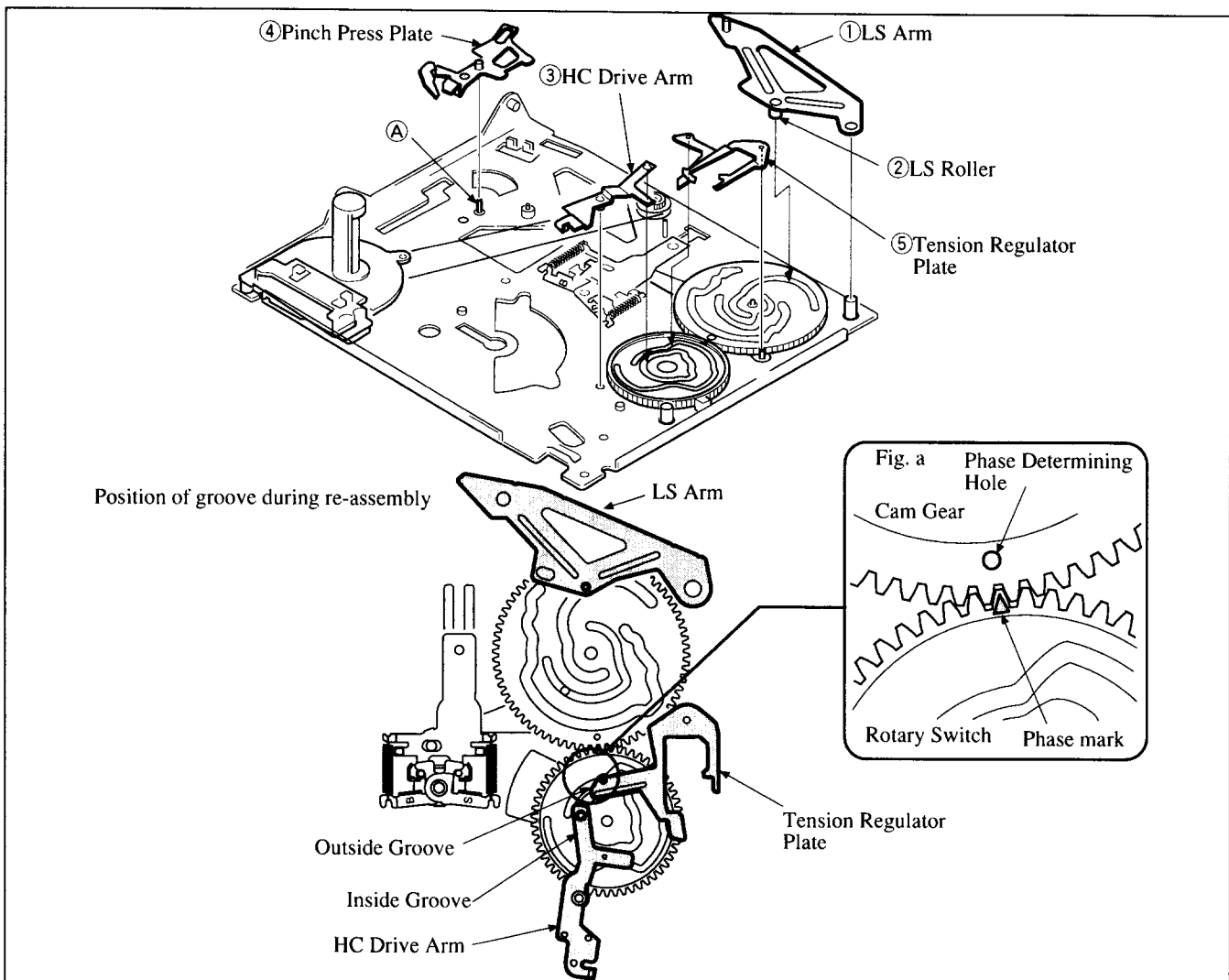


Fig. 19
— 23 —

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC Motor Assy referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
- 9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
- 10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

- 1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole ① on the mechanism chassis, and align the GL Arm's phase mark ② until it agrees with the phase-determining hole ① on the mechanism chassis. Coat the mechanism's chassis Gear Axis ① with grease SG-055G (Ref. No. J-13).
- 2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
- 3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

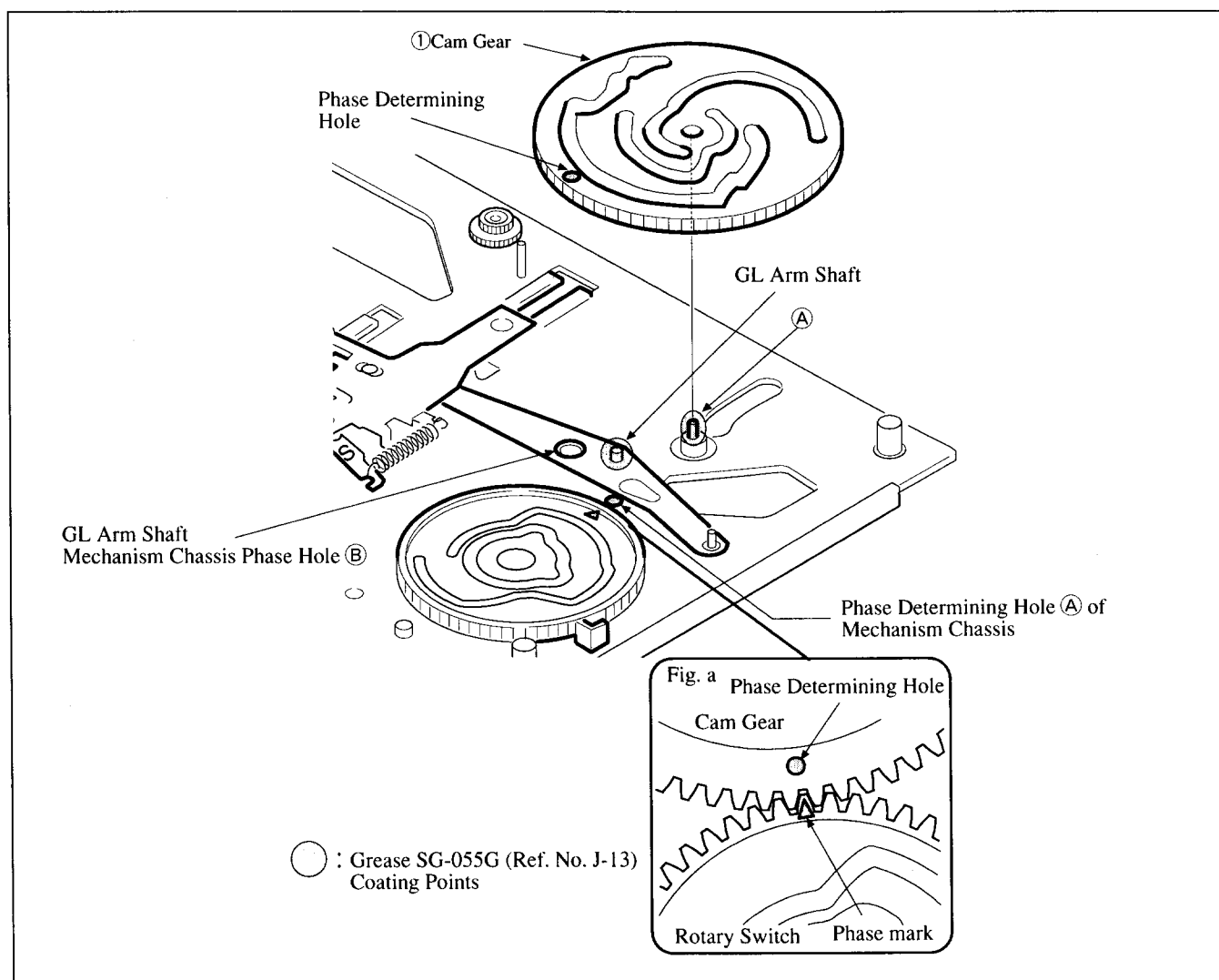


Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC Motor Assy referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
- 9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
- 10) Remove the Cam Gear referring to section 3-14.
- 11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow ①A.
- 12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

- 1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
- 2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
- 3) Coat the four points ③ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
- 4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

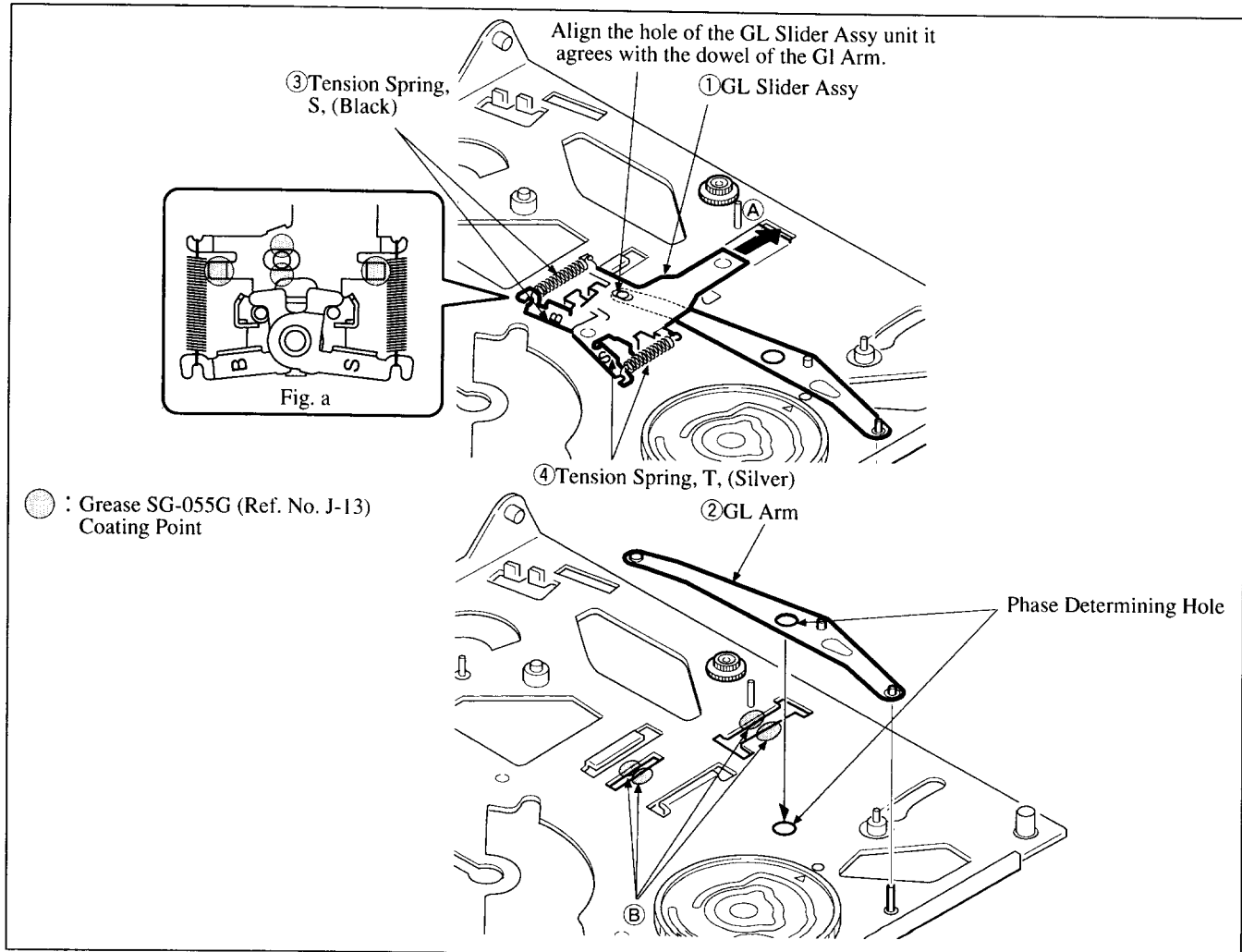


Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC Motor Assy referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
- 9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
- 10) Remove the Cam Gear referring to section 3-14.
- 11) Remove soldering the portion ① on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
- 12) While lifting up the portion ② about 1 mm (pay attention not to break it), hold the portion ③ and turn it in the direction of the arrow ④ to remove the Rotary Switch.

2. Precautions During Re-Assembly

- 1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion ② dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

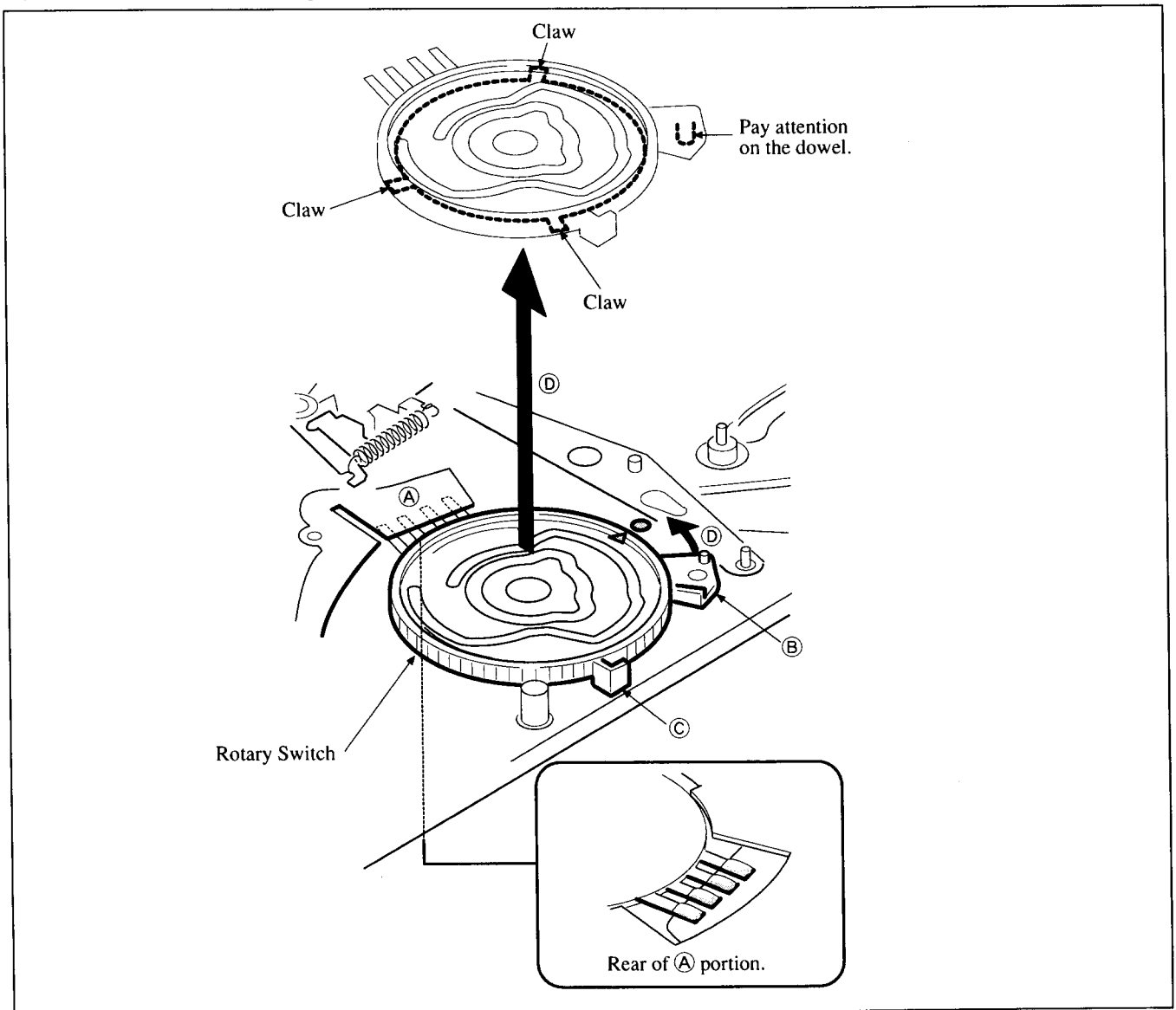


Fig. 22

3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC Motor Assy referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
- 9) Remove the Pinch Press Plate referring to section 3-13.
- 10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
- 11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
- 12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

- 1) Confirm that the timing belt is not twisted.
- 2) Do not touch the capstan with bare hand.
- 3) Lubricate the mechanism chassis's Change Gear shaft ①.
- 4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.

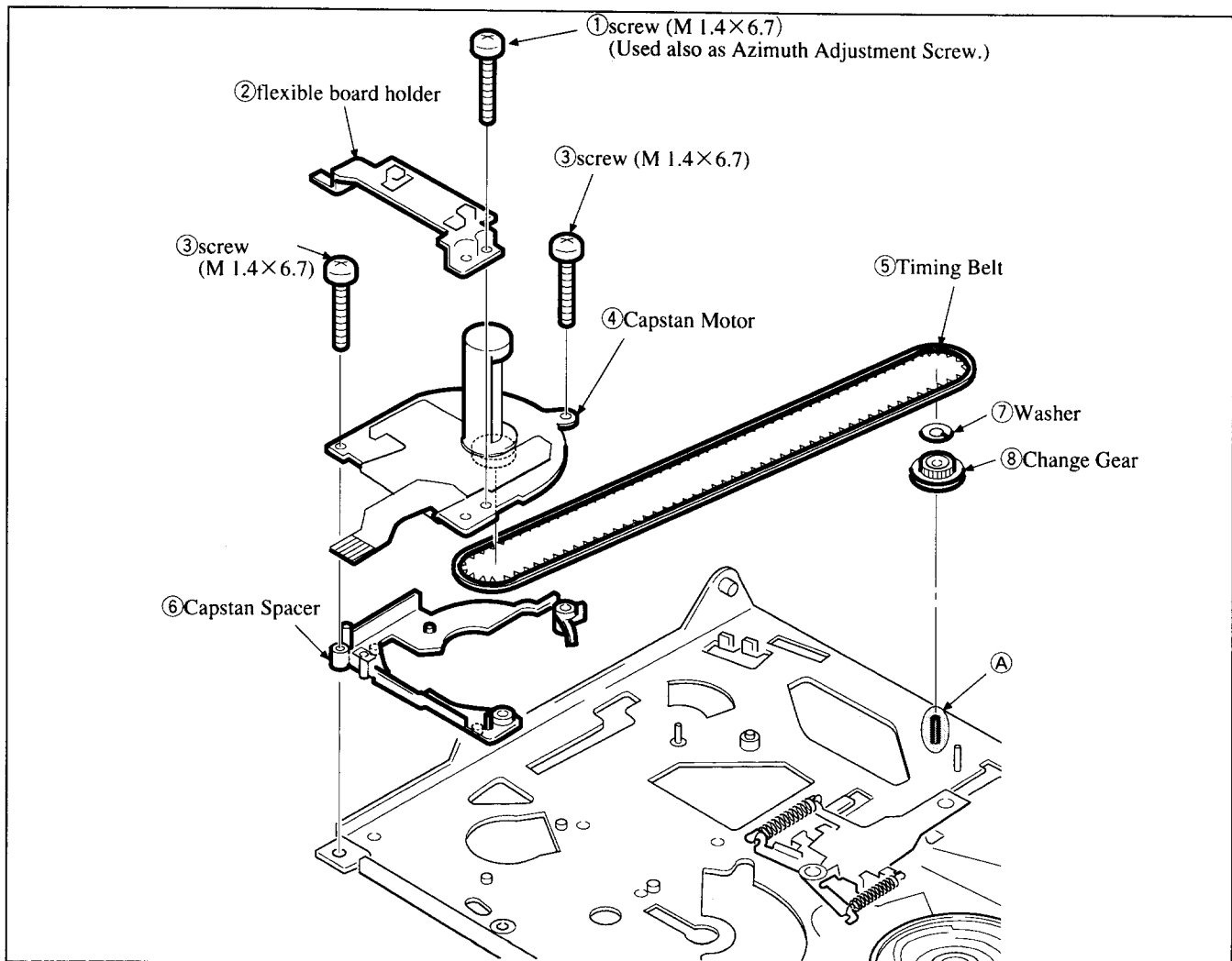
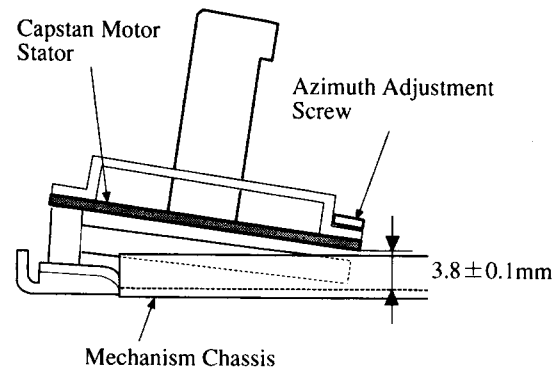


Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

- 1) Insert a cassette Tape and run the Tape in PB mode.
- 2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
- 3) If not, proceed to step 4).
- 4) Loosen the screw ① (M 1.4×3).
- 5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow ①. If it is located outside, move it in the direction of the arrow ②.
- 6) Tighten the screw ① (M 1.4×3).

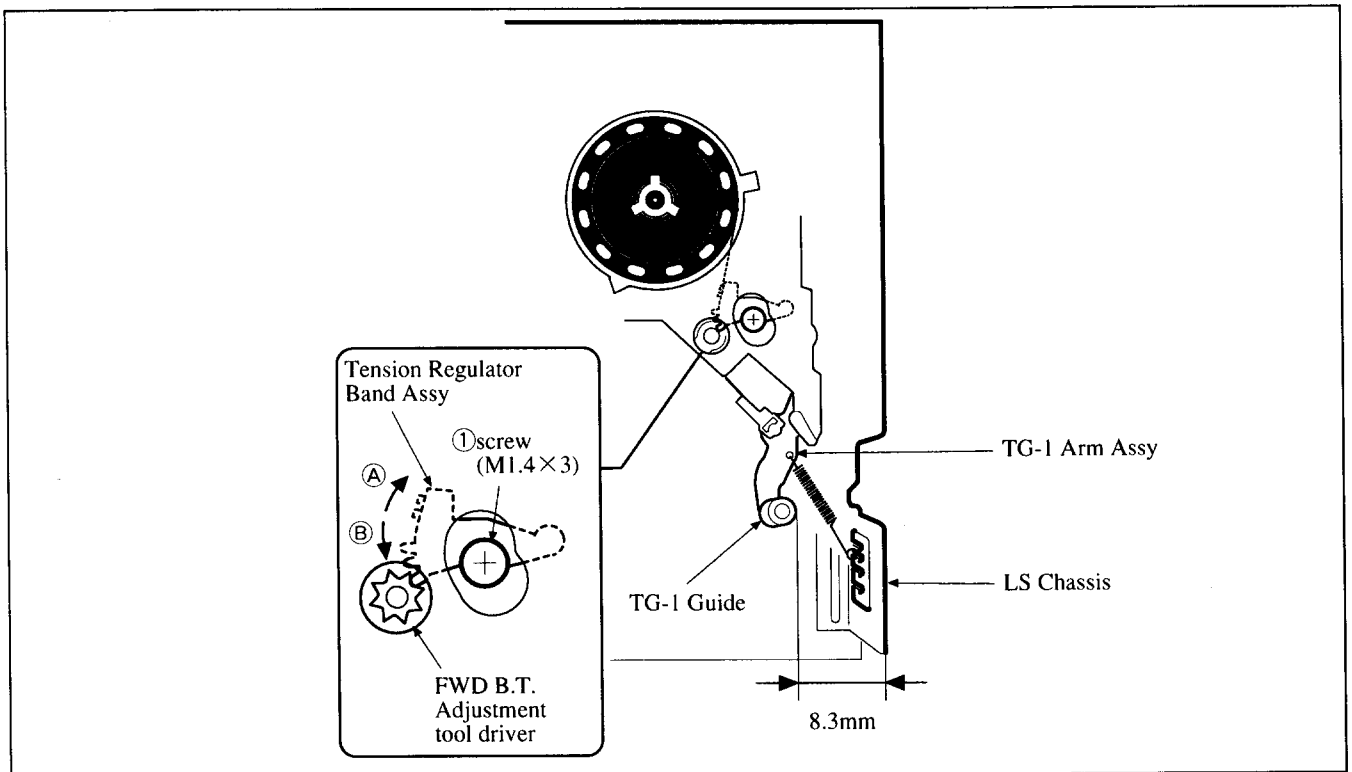


Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

- 1) Insert the torque measurement cassette to the machine.
- 2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
- 3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side (A).
- 4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side (B).

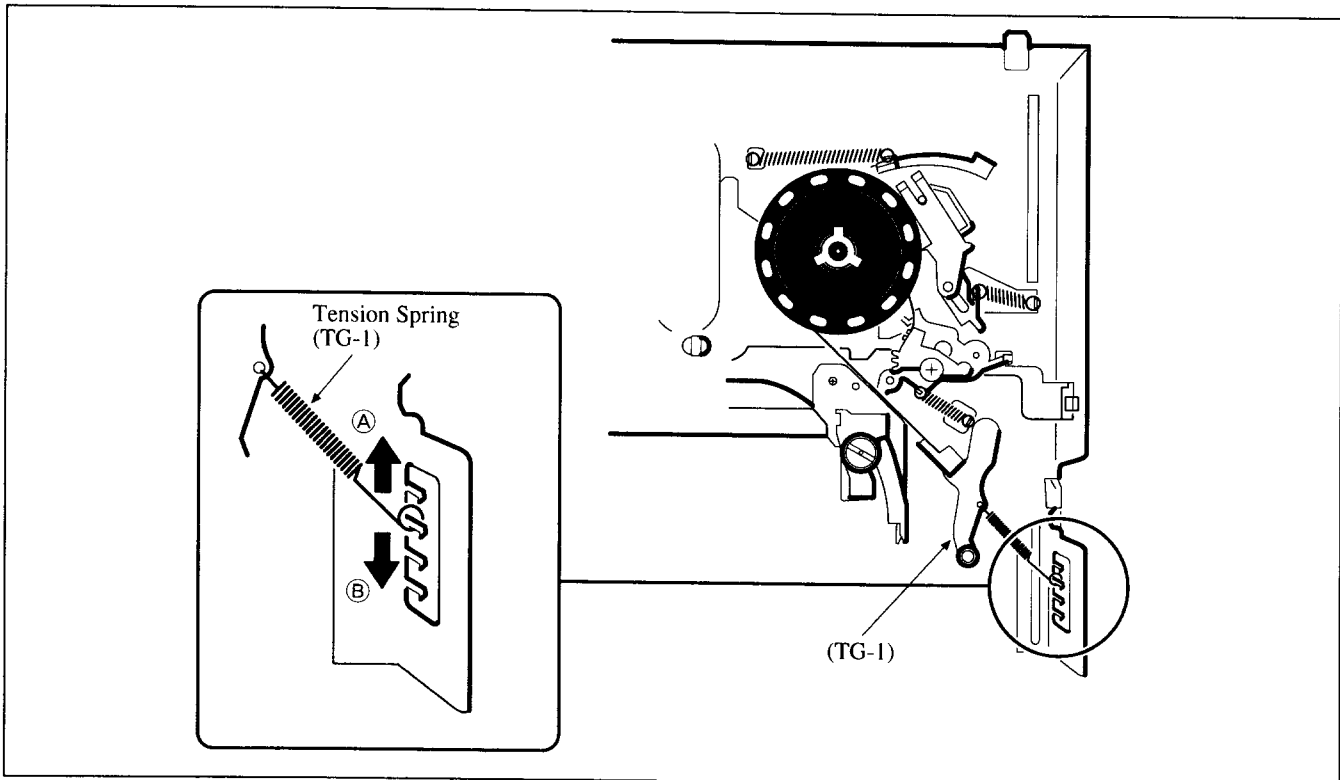


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose: Adjusts the head linearity.
Adjustment Error: Noise appears on top and bottom of display when playing back the tape recorded by other machines.

4-1. Preparations for Adjustments

- 1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
- 2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
- 3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
- 4) Connect an oscilloscope.
 CH1: Test connector PB RF terminal
 External trigger: Test connector PB SWP terminal
- 5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
- 6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
 If it not flat, perform the following section 4-2 until it is flat.
- 7) After completing the adjustment, release the PATH mode (Track Shift mode)*.

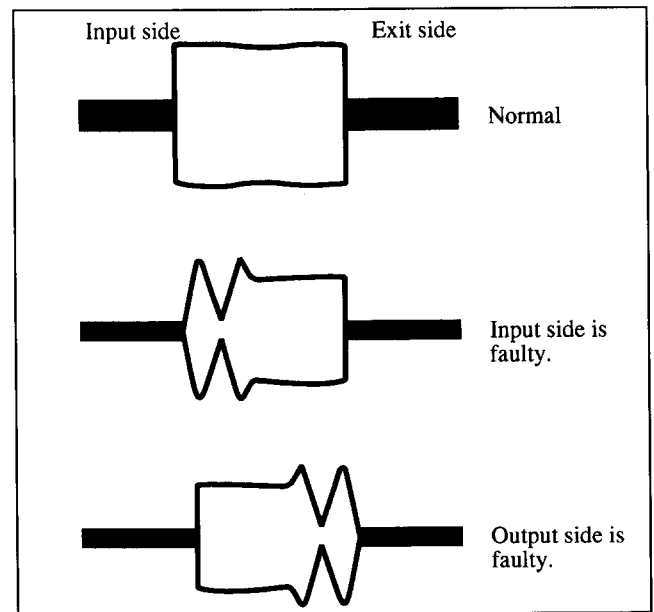


Fig. 26

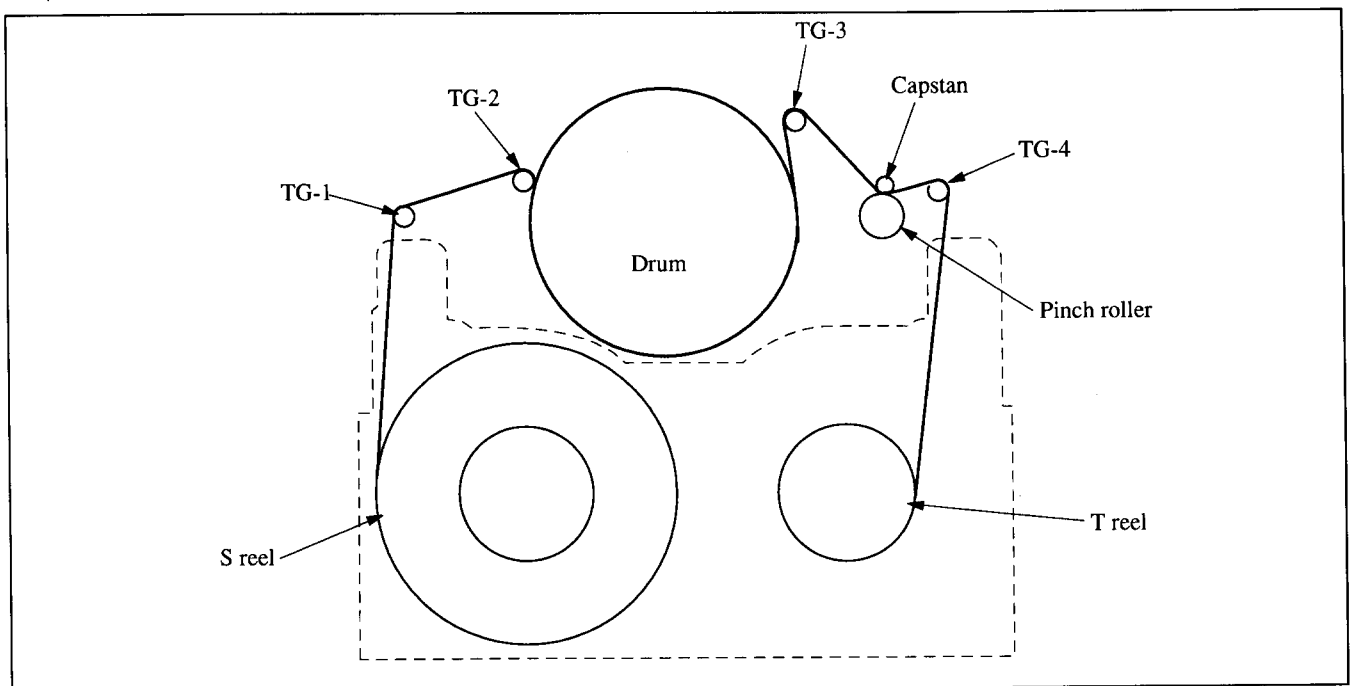


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exiting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

- 1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
- 2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
- 3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

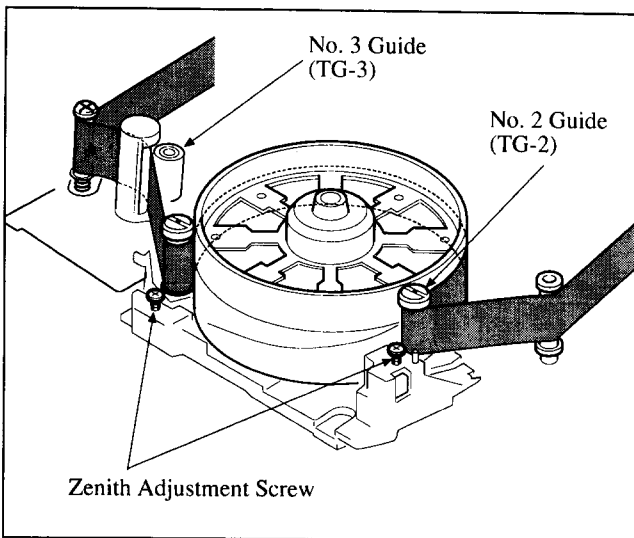


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

- 1) Playback a tape in REV mode.
- 2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
- 3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

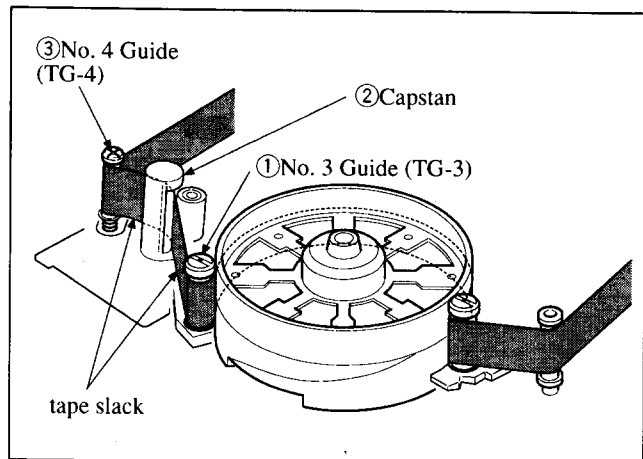


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

- 1) Playback the tracking alignment tape in REV mode.
Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
- 2) Playback the tracking alignment tape in CUE mode.
Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

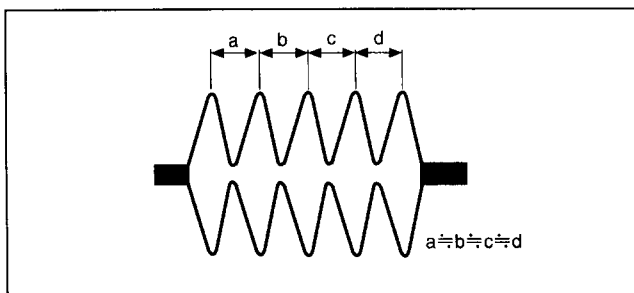


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

- 1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
- 2) Confirm that the minimum amplitude (E_{MIN}) of the RF waveform is 65 % or more of the maximum amplitude (E_{MAX}). (Refer to Fig. 32)
- 3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

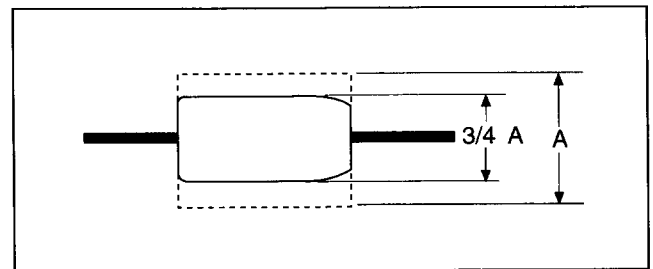


Fig. 31

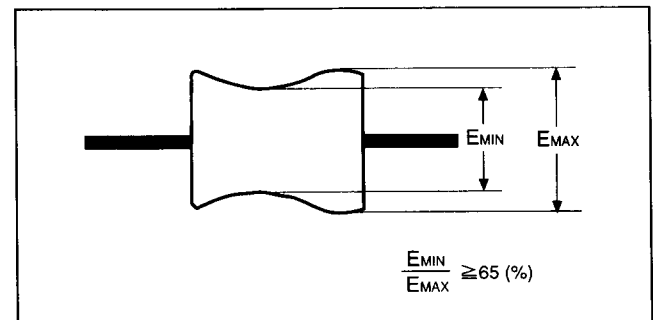


Fig. 32

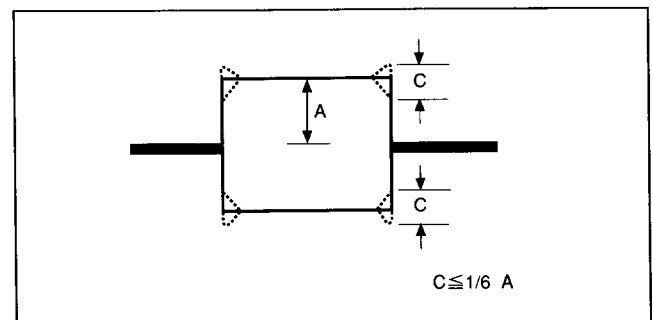


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

- 1) Playback the tracking alignment tape.
- 2) Turn OFF the Track Shift mode.
- 3) Eject the tape once, insert and load the tape.
- 4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
- 5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
- 6) Repeat the check items 3) to 5) again.

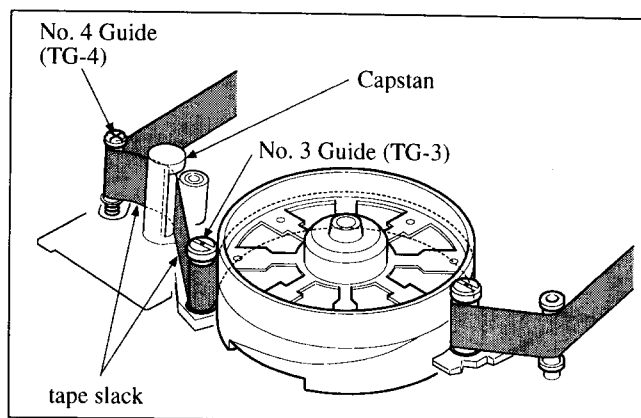


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

- 1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
- 2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

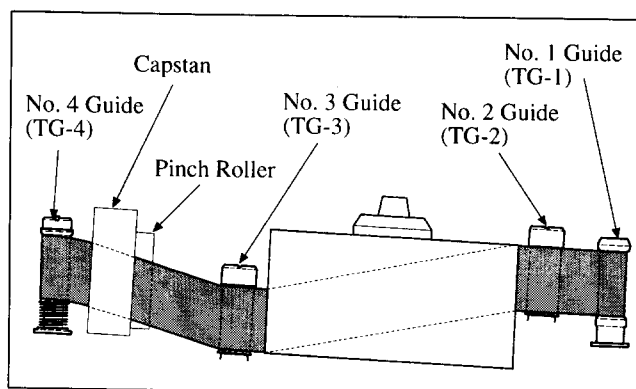
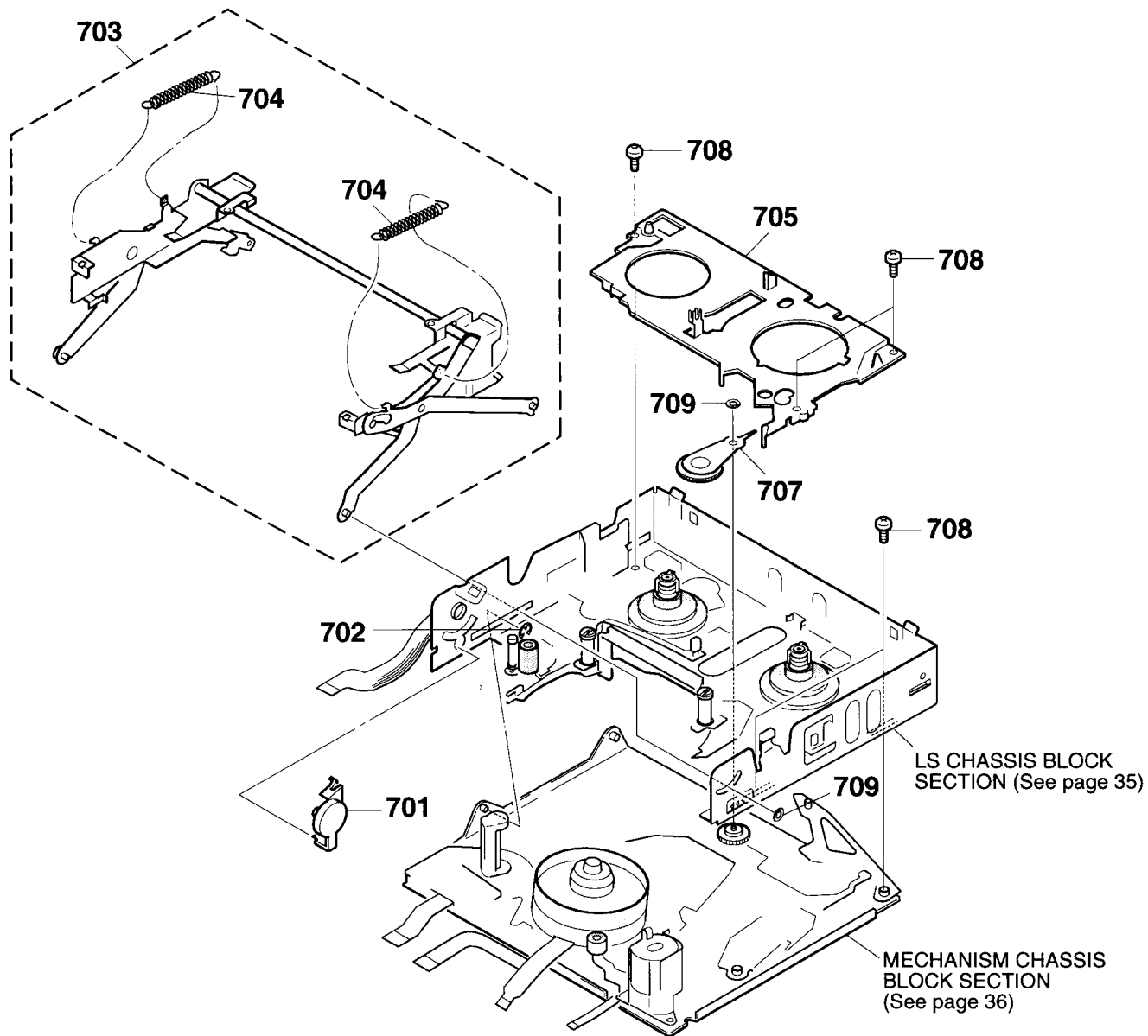
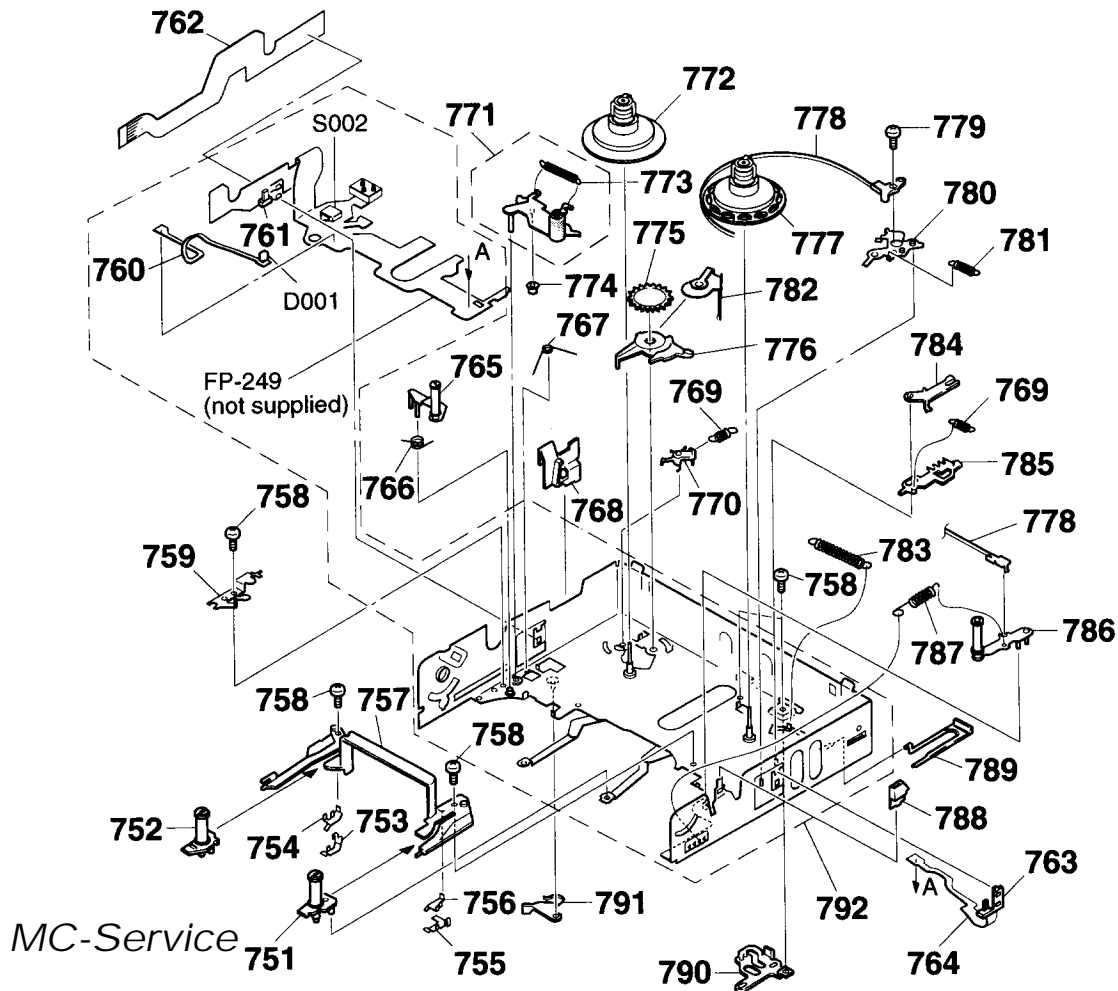


Fig. 35

5-1. Cassette Compartment Block Section



5-2. LS Chassis Block Section



5-3. Mechanism Chassis Block Section

